



United States
Department of
Agriculture



Natural
Resources
Conservation
Service

In cooperation with Cole
County Soil and Water
Conservation District,
Missouri Department of
Natural Resources,
Missouri Agricultural
Experiment Station, and
Missouri Department of
Conservation

Soil Survey of Cole County, Missouri



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How To Use This Soil Survey

General Soil Map

The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

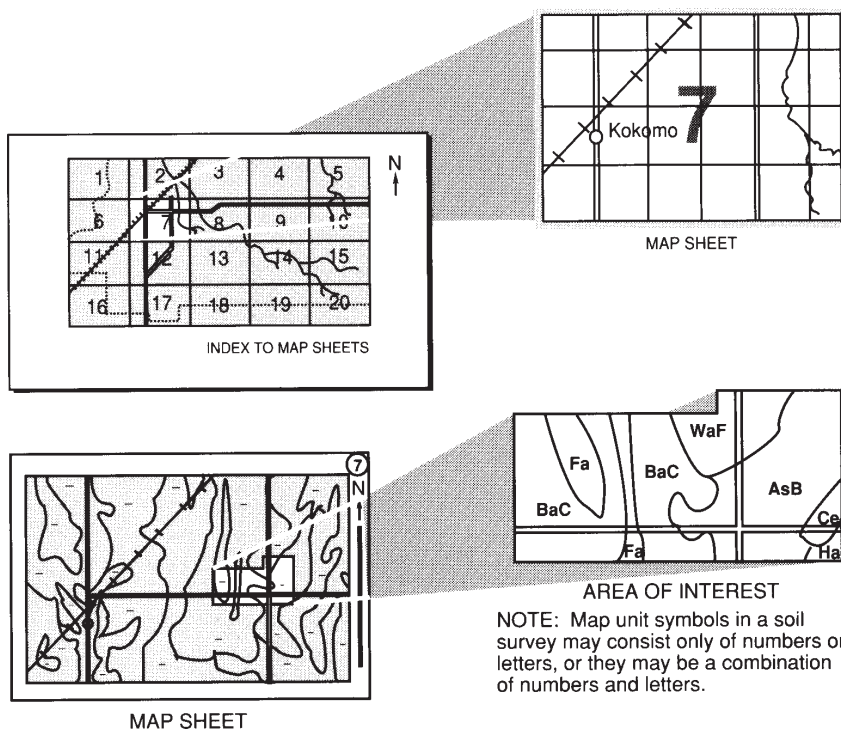
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2001. Soil names and descriptions were approved in 2001. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2001. This survey was made cooperatively by the Natural Resources Conservation Service, the Missouri Department of Natural Resources, the Missouri Agricultural Experiment Station, the Missouri Department of Conservation, and the Cole County Soil and Water Conservation District. The survey is part of the technical assistance furnished to the Cole County Soil and Water Conservation District. Financial assistance was made available by the Missouri Department of Natural Resources.

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Cover: The Missouri State Capitol overlooks the Missouri River, the historic highway of the Lewis and Clark expedition. (Photo courtesy of Tim Bommel)

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Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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Soil Survey of Cole County, Missouri

By Keith O. Davis, Natural Resources Conservation Service

Fieldwork by John L. Baker, Keith O. Davis, Curtis G. Marshall, and Fred J. Young, Natural Resources Conservation Service, and Gregory D. Caldwell and Mike Chalfant, Missouri Department of Natural Resources

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
Cole County Soil and Water Conservation District, Missouri Department of Natural Resources, Missouri Agricultural Experiment Station, and Missouri Department of Conservation

COLE COUNTY is in central Missouri, on the northern edge of the Ozark region (fig. 1). The county has a land area of 257,139 acres, or about 401 square miles.

Cole County is bordered on the north by the Missouri River, on the east by the Osage River and Osage County, on the south by Miller County, and on the west by Moniteau County. Jefferson City is the county seat and the State Capital. In 1990, the population of Jefferson City was 35,000. In 1999, the population of the county was 69,307 (State of Missouri, 2000).

Much of the commerce in Cole County centers on State government, which employs nearly 17,000 people in the Jefferson City area (Jefferson City Chamber of Commerce, 2000). Many small industries and retailers also contribute to the economy of the county.

Farming has long been recognized as an important enterprise in Cole County. Cash receipts from livestock totaled almost 16 million dollars in 1999. Receipts from farm crops totaled almost 8 million dollars (Missouri Agricultural Statistics Service, 2000).

General Nature of the County

This section provides some general information about the survey area. It describes climate; water supply; water quality; physiography, relief, and drainage; and history and development.



Figure 1.—Location of Cole County in Missouri.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at California, Missouri, in the period 1961 to 1990. Table 2 shows the probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 33.4 degrees F and the average daily minimum temperature is 23 degrees. The lowest temperature on record, which occurred on December 23, 1989, is -21 degrees. In summer, the average temperature is 77.3 degrees and the average daily maximum temperature is 88.6 degrees. The highest recorded temperature, which occurred on July 30, 1980, is 109 degrees.

Growing degrees are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 38.31 inches. Of this total, 27.5 inches, or about 72 percent, usually falls in April through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall on record was 7.23 inches on July 7, 1993. Thunderstorms occur on about 52 days each year, and most occur from May to August.

The average seasonal snowfall is 14.3 inches. The greatest snow depth at any one time during the period of record was 16 inches. On the average, 10 days of the year have at least 1 inch of snow on the ground. The number of such days varies greatly from year to year. The heaviest 1-day snowfall on record is 9.0 inches.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 83 percent. The sun shines 66 percent of the time possible in summer and 49 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 12 miles per hour, in March.

Water Supply

Many of the upland soils in Cole County are suitable for the construction of ponds and small reservoirs. Most livestock in the county get water from these sources or from small creeks and springs. Some rural households have individual wells, but many are connected to organized rural water districts, which obtain their water from deep wells. Jefferson City obtains water from the Missouri River, which requires specialized intensive treatment. The quality of surface water and ground water is variable. This survey can be an important tool in the maintenance and improvement of overall water quality. The Missouri, Osage, and Moreau Rivers are the largest streams in the county.

Water Quality

Sources of subsurface water are plentiful in Cole County because of the karsted landscape and underground stream networks that have developed through dissolution of the soluble bedrock. Springs occur where this network reaches the surface. Where these springs have developed, they furnish a convenient water supply. The quality is determined by surface conditions at the points where infiltrating water enters the underground network and by the effectiveness of the soil and vegetation in filtering out contaminants. This soil survey is an essential tool for planning and implementing methods of protection of ground-water resources.

The quality of surface water is dependent upon management conditions on the soil surface. Concentrations of livestock result in large amounts of animal waste on the surface of the soil; these wastes flush with runoff water into streams and rivers after periods of intensive rainfall. Establishing filter strips, using a system of rotation grazing, keeping livestock away from streams, and applying other management practices help to protect surface water from degradation by animal waste.

Chemical contamination of surface water usually occurs as a result of soil erosion when soil particles have contaminants attached to them. Soil conservation practices thus are imperative not only to keep productive soil in place but also to keep pollutants out of bodies of surface water.

Physiography, Relief, and Drainage

The landscape patterns in Cole County are highly diverse. Steep bluffs and rocky hillsides border the Osage River in the southeast. Along the northern edge of the county, the Missouri River bluffs are equally imposing. Except in the steepest areas, these bluffs are covered with loess. This thick loess dominates the landscape for several miles south of the river, covering a strongly dissected landscape underlain by dolostone bedrock. The southwestern part of the county has two high divides—one through Russellville and the other along part of Highway 54. These areas have gentle landscapes and darker soils, suggestive of prairies long ago. The rest of the county consists of rolling to hilly dissected uplands with various thicknesses of loess underlain by residuum and dolostone. Very deep soils dominate the dendritic system of creeks and small streams that dissect the uplands. The larger areas of bottom land along the Missouri, Osage, and Moreau Rivers are nearly level

and have a complicated micro-landscape with subtle but important distinctions. Various elevations reflect differences in flooding frequency, differential downcutting, and deposition by the streams.

History and Development

By Greg Caldwell, soil scientist, Missouri Department of Natural Resources

Acquired as part of the Louisiana Purchase, the survey area was originally part of St. Louis County. In 1815, the area that is now Cole County became part of Howard County; in 1818, it was transferred to Cooper County. On November 16, 1820, Cole County was established as a separate county. It was named for Capt. Stephen Cole, who erected Cole's Fort during the War of 1812, where Boonville is now located (Goodspeed Publishing Company, 1889).

The earliest inhabitants were Native Americans, mainly of the Osage tribe. French voyageurs passed through the area in the late 1700s. In the spring of 1804, Meriwether Lewis and William Clark were in the area briefly as they journeyed westward. Several battles were fought in the area during the War of 1812. Some of the earliest settlers were veterans of this war from Tennessee, Kentucky, and Virginia. The first settlement was at the mouth of Moniteau Creek near the present-day community of Marion. In the 1830s and 1840s, there was a large German immigration into the area. By 1840, the population had grown to 9,286 (Goodspeed Publishing Company, 1889).

The first house in Jefferson City was built in 1819. The county seat was moved from Marion to Jefferson City in 1829. The State Capital was moved to Jefferson City from St. Charles in 1826. The first capitol building burned down in 1837. The new one was completed in 1842, and the Governor's house was completed in 1872 (Goodspeed Publishing Company, 1889).

The first settlers hunted, fished, and grew crops. They cleared small tracts of timber, planted corn and vegetables, and raised livestock. Some lead and coal mining occurred in the mid to late 1800s.

Today, most row crops are confined to the bottom land along the rivers and the uplands are a mixture of pasture and timber. There is still considerable production of livestock. During the 20th century, agricultural dominance of the economy gave way to commercial and industrial enterprises and State government.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with

precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels

of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

The descriptions, names, and delineations of the soils in this survey area do not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. These broad areas are called associations. Each association on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one association can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one association differ from place to place in slope, depth, drainage, and other characteristics that affect management.

1. Haynie-Blake-Sarpy Association

Composition

Extent of the association in the survey area: 4 percent

Extent of the components in the association (fig. 2):

Haynie and similar soils—50 percent

Blake and similar soils—36 percent

Sarpy and similar soils—14 percent

Setting

Landform: Flood plain along the Missouri River

Position on the landform: Haynie—the higher elevations; Blake—swales; Sarpy—areas adjacent to levee breaks

Slope range: 0 to 2 percent

Slope configuration: Planar and undulating

Parent Materials

- Alluvium

2. Menfro Association

Composition

Extent of the association in the survey area: 5 percent

Extent of the components in the association (fig. 3):

Menfro and similar soils—65 percent

Minor components—35 percent (Jamesfin and Freeburg soils; Urban land)

Setting

Position on the landform: Ridgetops and side slopes

Slope range: 3 to 35 percent

Slope configuration: Convex and complex

Parent Materials

- Loess and residuum

3. Wrengart-Gatewood Association

Composition

Extent of the association in the survey area: 36 percent

Extent of the components in the association (fig. 4):

Wrengart and similar soils—63 percent

Gatewood and similar soils—21 percent

Minor components—16 percent (Cotton, Freeburg, and Hartville soils)

Setting

Position on the landform: Side slopes and ridgetops

Slope range: 3 to 20 percent

Slope configuration: Convex and complex

Parent Materials

- Loess and residuum

4. Rueter-Niangua-Gravois Association

Composition

Extent of the association in the survey area: 8 percent

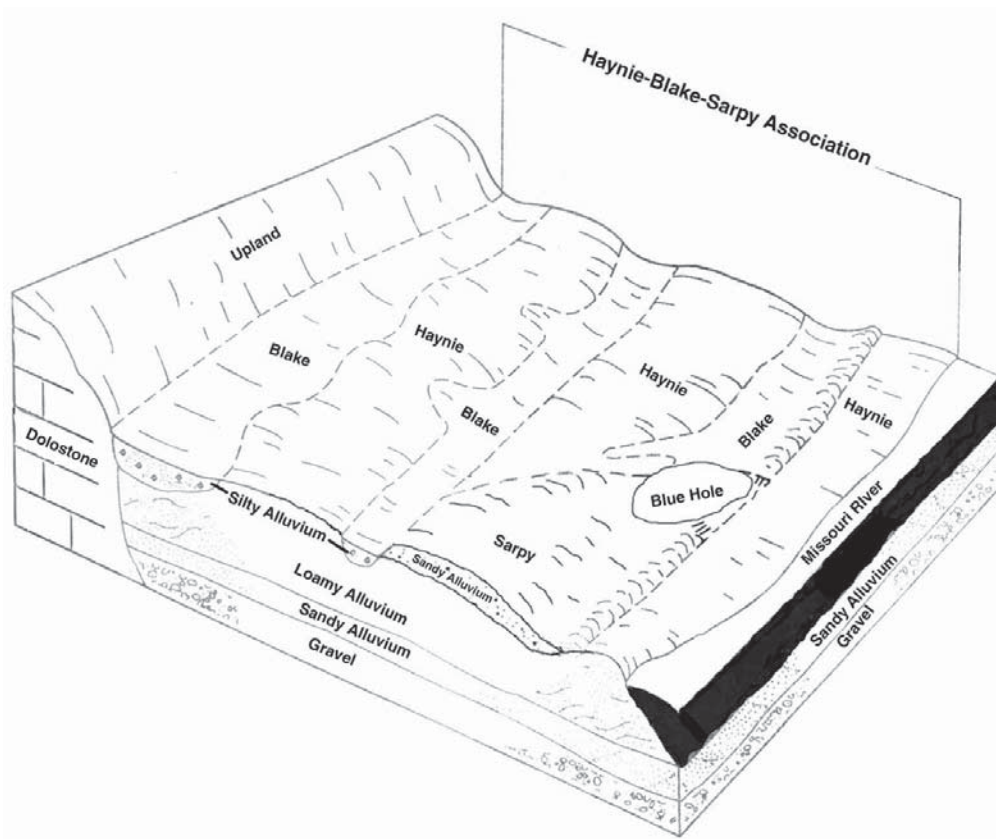


Figure 2.—Typical pattern of soils and parent material in the Haynie-Blake-Sarpy association.

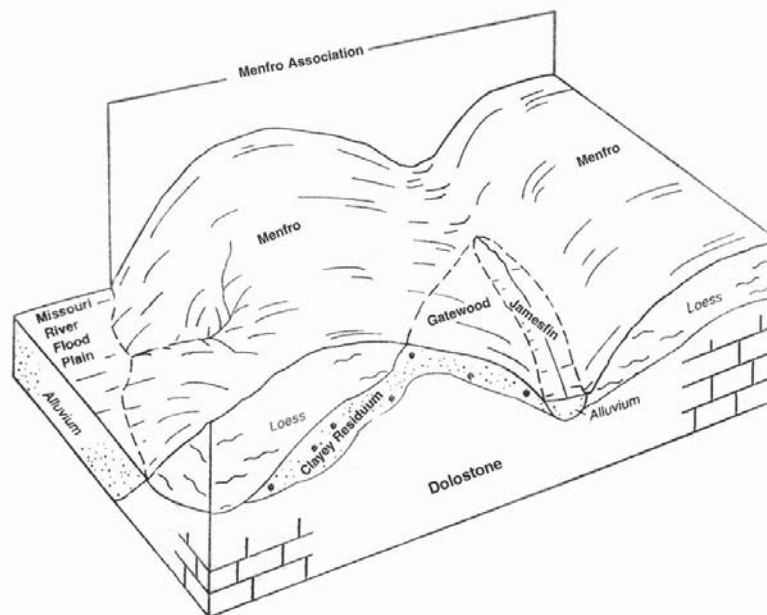


Figure 3.—Typical pattern of soils and parent material in the Menfro association.

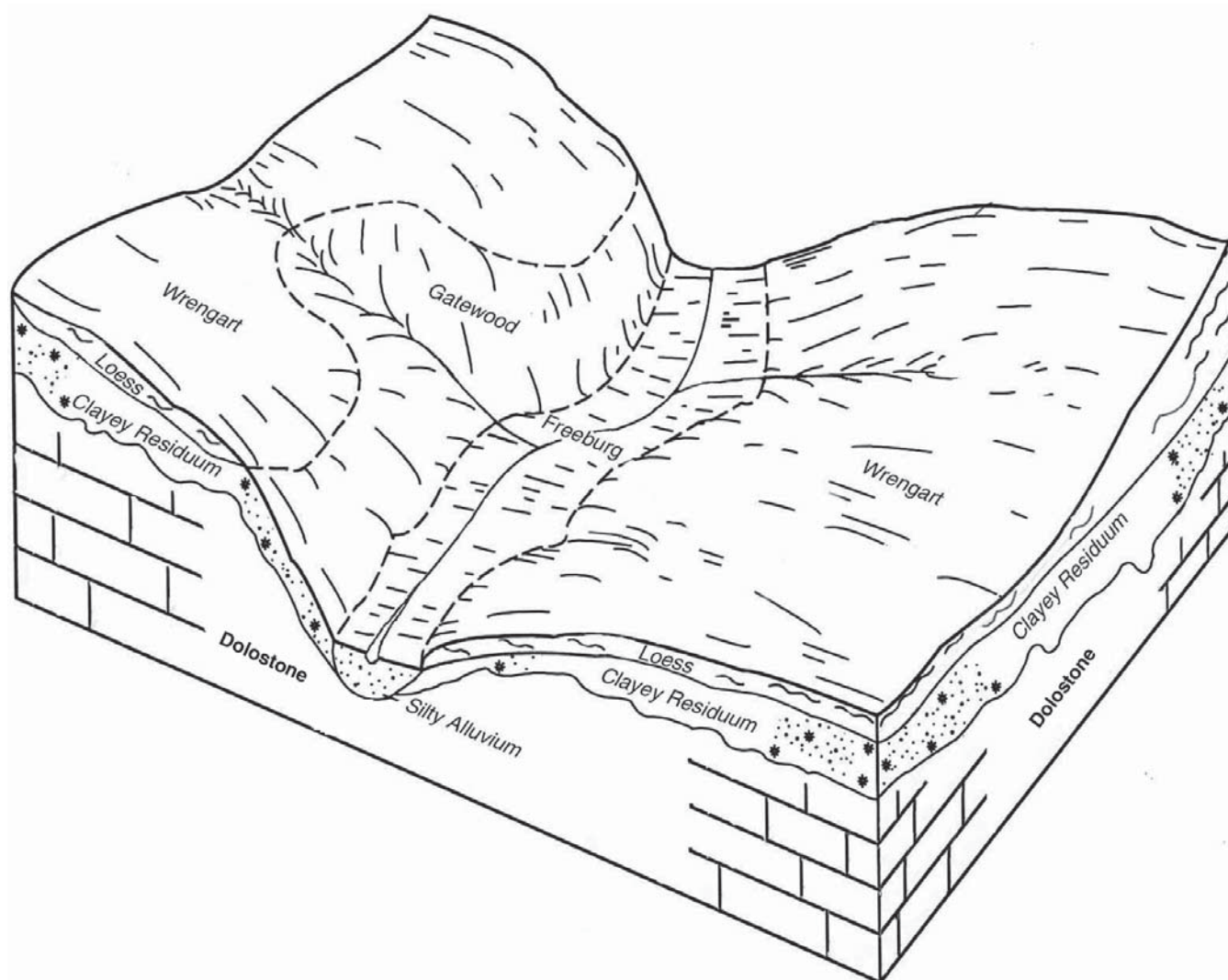


Figure 4.—Typical pattern of soils and parent material in the Wrengart-Gatewood association.

Extent of the components in the association (fig. 5):

Rueter and similar soils—56 percent
 Niangua and similar soils—22 percent
 Gravois and similar soils—17 percent
 Minor soils—5 percent (Freiburg soils)

Setting

Position on the landform: Rueter and Niangua—side slopes; Gravois—side slopes and ridgetops
Slope range: 3 to 99 percent
Slope configuration: Convex and complex

Parent Materials

- Residuum and loess

5. Maplewood-Arkana Association

Composition

Extent of the association in the survey area: 4 percent

Extent of the components in the association (fig. 6):

Maplewood and similar soils—63 percent
 Arkana and similar soils—22 percent
 Minor components—15 percent (Sacville and Eldon soils)

Setting

Position on the landform: Maplewood—side slopes and ridgetops; Arkana—side slopes and narrow ridgetops

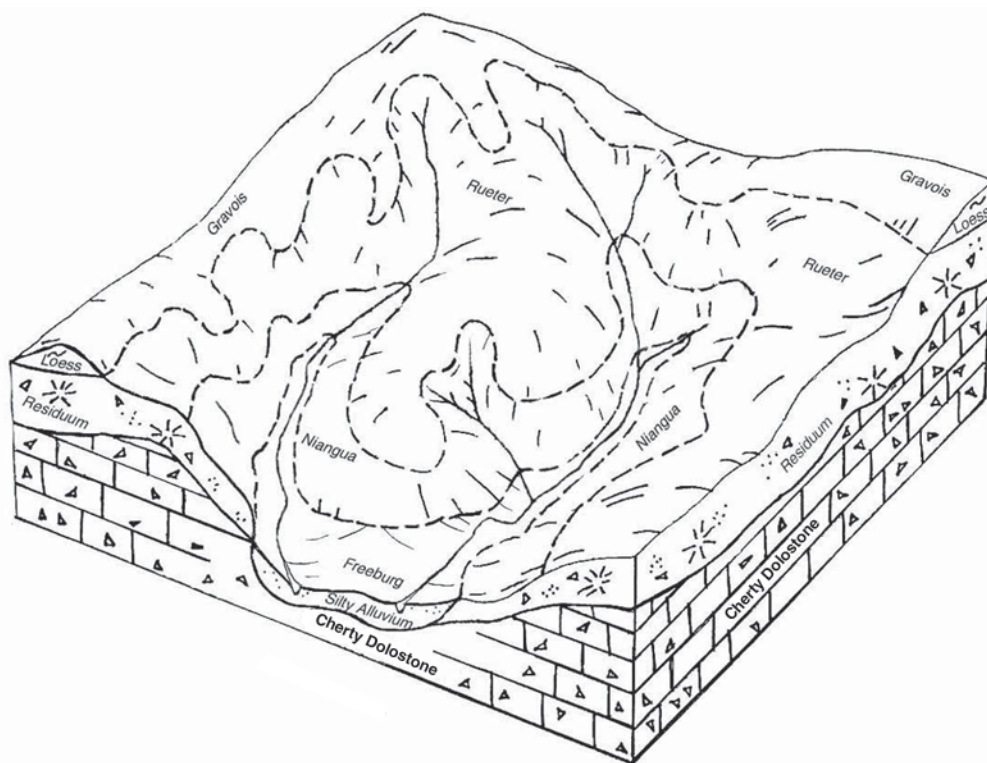


Figure 5.—Typical pattern of soils and parent material in the Rueter-Niangua-Gravois association.

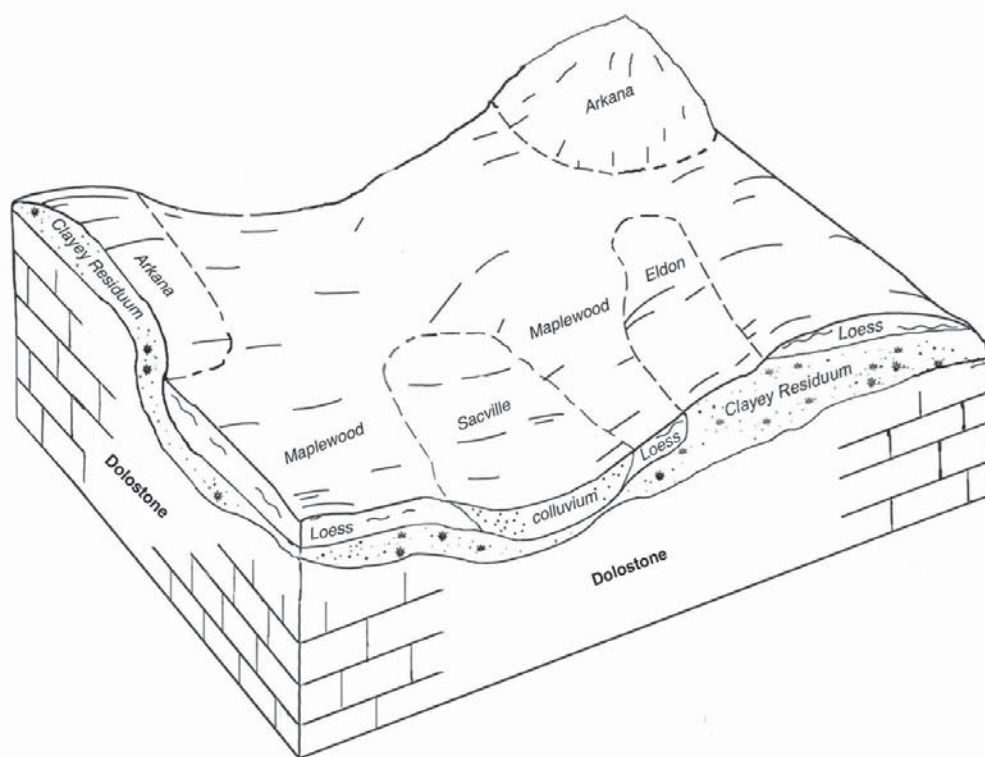


Figure 6.—Typical pattern of soils and parent material in the Maplewood-Arkana association.

Slope range: 2 to 9 percent

Slope configuration: Convex and complex

Parent Materials

- Loess and residuum

6. Jamesfin-Moniteau Association

Composition

Extent of the association in the survey area: 15 percent

Extent of the components in the association (fig. 7):

Jamesfin and similar soils—48 percent

Moniteau and similar soils—32 percent

Minor soils—20 percent (Dockery, Hacreek, and Tanglenook soils)

Setting

Landform: Jamesfin—flood plains; Moniteau—stream terraces

Slope range: 0 to 3 percent

Slope configuration: Linear and simple

Parent Materials

- Alluvium

7. Gravois-Gatewood Association

Composition

Extent of the association in the survey area: 28 percent

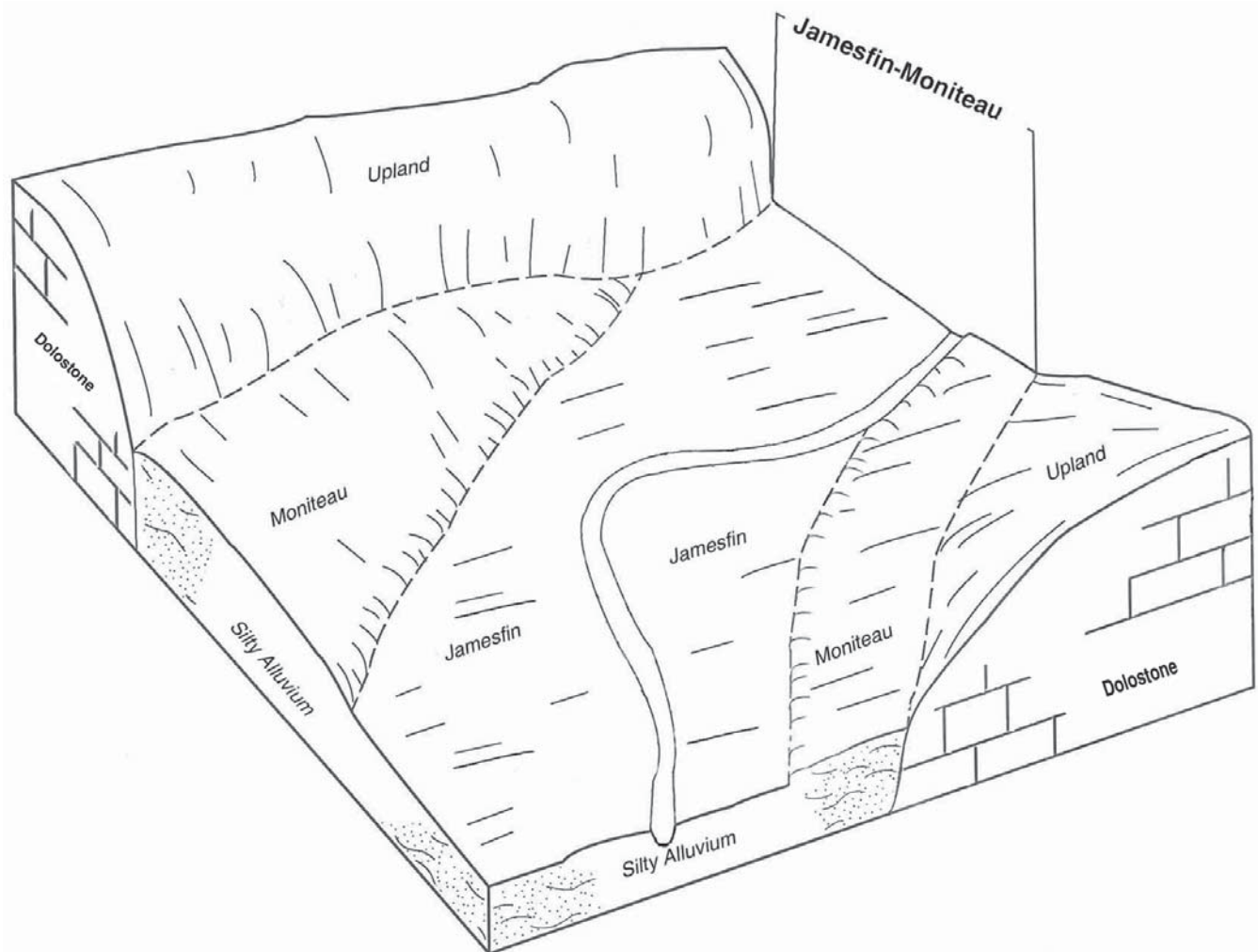


Figure 7.—Typical pattern of soils and parent material in the Jamesfin-Moniteau association.

Extent of the components in the association (fig. 8):

Gravois and similar soils—58 percent

Gatewood and similar soils—38 percent

Minor soils—4 percent (Freeburg, Hartville, and McGirk soils)

Slope range: 3 to 25 percent

Slope configuration: Convex and complex

Parent Materials

- Loess and residuum

Setting

Position on the landform: Side slopes and ridgetops

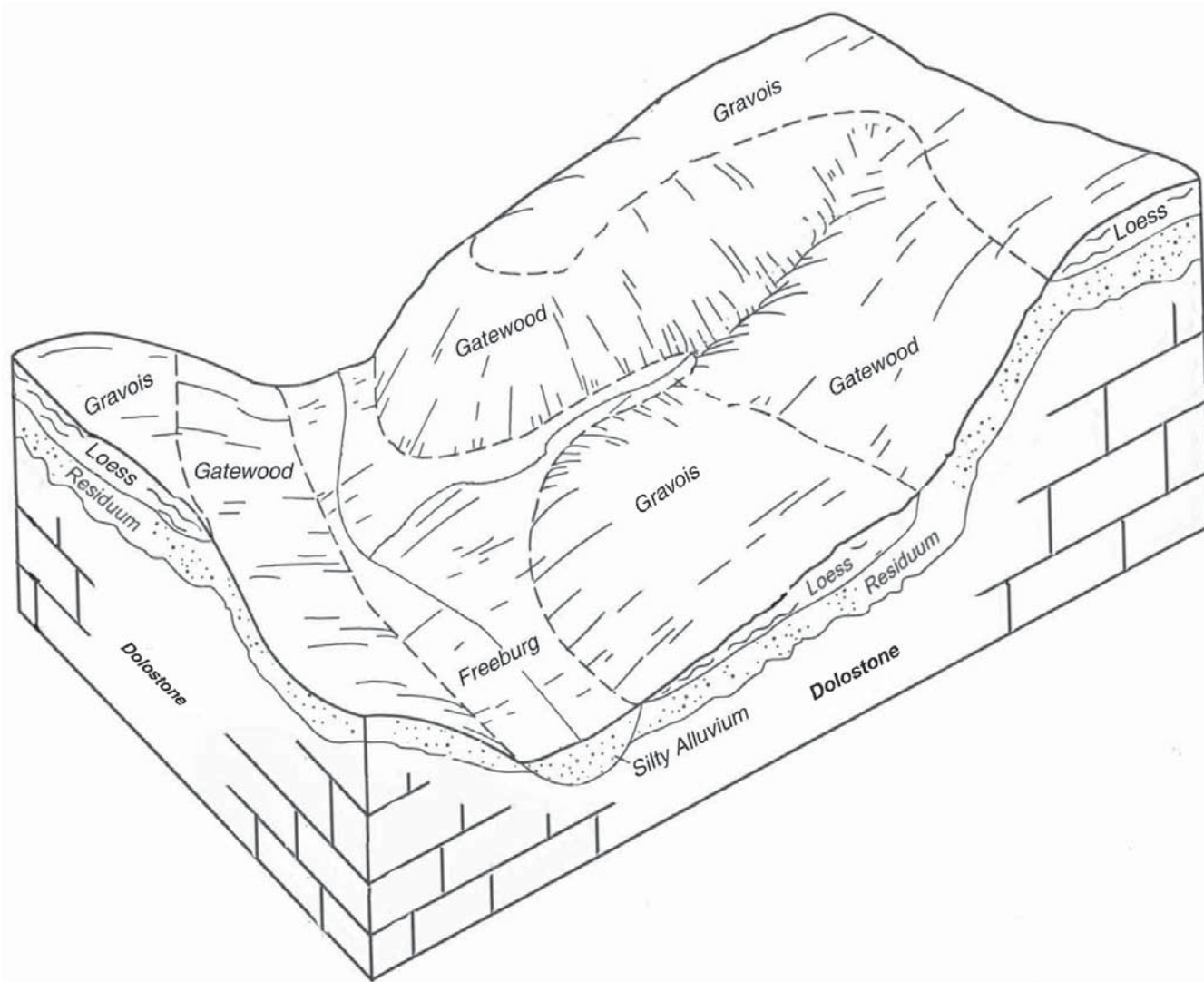


Figure 8.—Typical pattern of soils and parent material in the Gravois-Gatewood association.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to

make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Menfro silt loam, 5 to 9 percent slopes, is a phase of the Menfro series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are called complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Niangua-Bardley complex, 15 to 50 percent slopes, extremely stony, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, quarries, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

15002—McGirk silt loam, 1 to 3 percent slopes

Map Unit Setting

Landform: Hills

Component Description

McGirk

Percent of the map unit: 90 percent

Position on the landform: Toeslopes

Parent material: Clayey alluvium and clayey colluvium

Slope shape: Concave

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Medium

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: 6 to 24 inches

Drainage class: Poorly drained

Typical Profile

Ap—0 to 8 inches; silt loam

Btg1—8 to 15 inches; silty clay loam

Btg2—15 to 45 inches; silty clay

2Btg3—45 to 80 inches; silty clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Freeburg and Hartville soils in convex areas and at the edges of delineations

60001—Menfro silt loam, 5 to 9 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Menfro

Percent of the map unit: 90 percent

Position on the landform: Summits

Parent material: Fine-silty loess

Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Medium

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: More than 6 feet

Drainage class: Well drained

Typical Profile

Ap—0 to 6 inches; silt loam

Bt1—6 to 11 inches; silt loam

Bt2—11 to 34 inches; silty clay loam

Bt3—34 to 60 inches; silt loam

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Menfro soils that are eroded; in landform positions similar to those of the major Menfro soil
- Areas of Menfro silt loam, 2 to 5 percent slopes; on the less sloping summits
- Areas of moderately well drained soils; in swales and on shoulders above the heads of drainageways

60003—Menfro silt loam, 9 to 14 percent slopes, eroded

Map Unit Setting

Landform: Hills

Component Description**Menfro**

Percent of the map unit: 90 percent
Position on the landform: Backslopes
Parent material: Fine-silty loess
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: Medium
Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: More than 6 feet
Drainage class: Well drained

Typical Profile

Ap—0 to 5 inches; silt loam
 Bt1—5 to 28 inches; silty clay loam
 Bt2—28 to 63 inches; silt loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Areas of Menfro silt loam, 14 to 20 percent slopes; on the lower slopes
- Areas of moderately well drained soils; in concave heads of drainageways

60004—Menfro silt loam, 14 to 20 percent slopes, eroded**Map Unit Setting**

Landform: Hills

Component Description**Menfro**

Percent of the map unit: 90 percent
Position on the landform: Backslopes
Parent material: Fine-silty loess
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Medium

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: More than 6 feet
Drainage class: Well drained

Typical Profile

Ap—0 to 5 inches; silt loam
 Bt1—5 to 28 inches; silty clay loam
 Bt2—28 to 63 inches; silt loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Areas of Menfro silt loam, 20 to 35 percent slopes; at the lower edges of delineations near drainageways
- Moderately well drained soils; in concave areas

60005—Menfro silt loam, 20 to 35 percent slopes**Map Unit Setting**

Landform: Hills

Component Description**Menfro**

Percent of the map unit: 90 percent
Position on the landform: Backslopes
Parent material: Fine-silty loess
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: High
Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: More than 6 feet
Drainage class: Well drained

Typical Profile

A—0 to 4 inches; silt loam

E—4 to 16 inches; silt loam
 Bt1—16 to 29 inches; silty clay loam
 Bt2—29 to 62 inches; silt loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Gatewood soils at the lower edges of delineations near incised drainageways
- Jamesfin soils in small areas of bottom land

60051—Urban land-Harvester complex, 3 to 15 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Urban land

Percent of the map unit: 60 percent
Position on the landform: Backslopes, summits, and footslopes
Slope shape: Linear

Harvester

Percent of the map unit: 35 percent
Position on the landform: Backslopes, summits, and footslopes
Parent material: Disturbed fine-silty loess
Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: High
Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: 30 to 36 inches
Drainage class: Moderately well drained

Typical Profile

C1—0 to 5 inches; silt loam
 C2—5 to 80 inches; silty clay loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional

information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Menfro soils in landform positions similar to those of the Harvester soil

60052—Urban land-Udorthents complex, 3 to 15 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Urban land

Percent of the map unit: 50 percent
Position on the landform: Backslopes, summits, and footslopes
Slope shape: Linear

Component Properties and Qualities

Runoff rate: Very high

Udorthents

Percent of the map unit: 35 percent
Position on the landform: Backslopes, summits, and footslopes
Parent material: Disturbed clayey residuum derived from dolomite
Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: Very high
Depth to restrictive feature: 60 to 80 inches to bedrock (lithic)

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: 30 to 36 inches
Drainage class: Moderately well drained

Typical Profile

C1—0 to 10 inches; very bouldery clay
 C2—10 to 71 inches; very bouldery clay
 R—71 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional

information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Gatewood and Harvester soils in landform positions similar to those of the Udorthents

64002—Freeburg silt loam, 1 to 3 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Freeburg

Percent of the map unit: 90 percent
Position on the landform: Footslopes
Parent material: Fine-silty alluvium
Slope shape: Concave

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: Low
Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: 12 to 30 inches
Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 7 inches; silt loam
 Bt—7 to 60 inches; silty clay loam

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Freeburg soils that are occasionally flooded; at the lower reaches of streams, including the Moreau River
- Gunlock and McGirk soils in areas adjacent to the uplands
- Jemerson soils in convex areas

64007—Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

Landform: Stream terraces

Component Description

Freeburg

Percent of the map unit: 85 percent
Position on the landform: Treads
Parent material: Fine-silty alluvium
Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: Medium
Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Occasional
Ponding: None
Current depth to water table: 12 to 30 inches
Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 8 inches; silt loam
 E—8 to 18 inches; silt loam
 Bt—18 to 37 inches; silty clay loam
 Btg—37 to 65 inches; silty clay loam

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Jemerson soils in convex areas
- Moniteau soils in the lower depressions

64010—Urban land-Freeburg complex, 0 to 3 percent slopes, rarely flooded

Map Unit Setting

Landform: Stream terraces

Component Description

Urban land

Percent of the map unit: 60 percent
Position on the landform: Treads
Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: Very high

Component Hydrologic Properties

Flooding frequency: Rare
Ponding: None

Current depth to water table: More than 6 feet

Drainage class: Not applicable

Freeburg

Percent of the map unit: 35 percent

Position on the landform: Treads

Parent material: Fine-silty alluvium

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Medium

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Rare

Ponding: None

Current depth to water table: 12 to 30 inches

Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 8 inches; silt loam

E—8 to 18 inches; silt loam

Bt—18 to 37 inches; silty clay loam

Btg—37 to 65 inches; silty clay loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Jamesfin soils at the lower elevations near stream channels

64011—Kliever loam, 2 to 5 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Kliever

Percent of the map unit: 90 percent

Position on the landform: Summits

Parent material: Alluvium

Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Low

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: 48 to 72 inches

Drainage class: Well drained

Typical Profile

Ap—0 to 8 inches; loam

BE—8 to 17 inches; loam

Bt1—17 to 52 inches; loam

2Bt2—52 to 64 inches; silt loam

3Bt3—64 to 80 inches; silty clay loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Kliever soils that have slopes of 5 to 9 percent; in landform positions similar to those of the major Kliever soil
- Menfro soils in the slightly higher areas
- Concave areas of soils that are wetter than the Kliever soil

64012—Kliever loam, 5 to 9 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Kliever

Percent of the map unit: 85 percent

Position on the landform: Backslopes

Parent material: Alluvium

Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Medium

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: 48 to 72 inches

Drainage class: Well drained

Typical Profile

Ap—0 to 8 inches; loam

BE—8 to 17 inches; loam
 Bt1—17 to 52 inches; loam
 2Bt2—52 to 64 inches; silt loam
 3Bt3—64 to 80 inches; silty clay loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Kliever soils that have slopes of 9 to 14 percent; in landform positions similar to those of the major Kliever soil
- Menfro soils in the slightly higher areas
- Concave areas of soils that are wetter than the Kliever soil

64013—Kliever loam, 9 to 14 percent slopes, eroded

Map Unit Setting

Landform: Hills

Component Description

Kliever

Percent of the map unit: 85 percent
Position on the landform: Backslopes
Parent material: Alluvium
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: Medium
Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: 48 to 72 inches
Drainage class: Well drained

Typical Profile

Ap—0 to 8 inches; loam
 Bt1—8 to 52 inches; loam
 2Bt2—52 to 64 inches; silt loam
 3Bt3—64 to 80 inches; silty clay loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional

information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Kliever soils that have slopes of 14 to 20 percent; on the lower slopes near drainageways
- Menfro soils in the slightly higher areas
- Concave areas of soils that are wetter than the Kliever soil

64014—Kliever loam, 14 to 20 percent slopes, eroded

Map Unit Setting

Landform: Hills

Component Description

Kliever

Percent of the map unit: 95 percent
Position on the landform: Backslopes
Parent material: Alluvium
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: Medium
Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: 48 to 72 inches
Drainage class: Well drained

Typical Profile

Ap—0 to 8 inches; loam
 Bt1—8 to 52 inches; loam
 2Bt2—52 to 64 inches; silt loam
 3Bt3—64 to 80 inches; silty clay loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Menfro soils in the slightly higher areas
- Concave areas of soils that are wetter than the Kliever soil

66000—Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

Landform: Stream terraces

Component Description

Moniteau

Percent of the map unit: 85 percent

Position on the landform: Treads

Parent material: Fine-silty alluvium

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Medium

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Occasional

Ponding: None

Current depth to water table: 0 to 12 inches

Drainage class: Poorly drained

Typical Profile

Ap—0 to 7 inches; silt loam

E—7 to 14 inches; silt loam

Btg—14 to 80 inches; silty clay loam

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Deible soils in landform positions similar to those of the Moniteau soil
- Freeburg soils in convex areas and at the edges of delineations

66004—Dockery silt loam, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

Landform: Flood plains

Component Description

Dockery

Percent of the map unit: 90 percent

Parent material: Silty alluvium

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Low

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Frequent

Ponding: None

Current depth to water table: 18 to 30 inches

Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 10 inches; silt loam

C—10 to 60 inches; silt loam

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Jamesfin soils at the edges of delineations and in convex areas
- Areas of soils that are wetter than the Dockery soil; in the slightly lower positions

66006—Waldron silty clay loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

Landform: Flood plains

Component Description

Waldron

Percent of the map unit: 90 percent

Parent material: Clayey alluvium

Slope shape: Concave

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Medium

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Occasional

Ponding: None

Current depth to water table: 12 to 36 inches

Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 11 inches; silty clay loam

Cg—11 to 60 inches; stratified silty clay loam to silty clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Leta soils in the slightly higher areas

66009—Haynie silt loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

Landform: Flood plains

Component Description

Haynie

Percent of the map unit: 90 percent
Parent material: Coarse-silty alluvium
Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: Low
Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Occasional
Ponding: None
Current depth to water table: More than 6 feet
Drainage class: Well drained

Typical Profile

Ap—0 to 16 inches; silt loam
 C—16 to 64 inches; stratified very fine sandy loam to silt loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Sarpy soils in landform positions similar to those of the Haynie soil

66010—Sarpy fine sand, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

Landform: Flood plains

Component Description

Sarpy

Percent of the map unit: 90 percent
Parent material: Sandy alluvium
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: Negligible
Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Frequent
Ponding: None
Current depth to water table: More than 6 feet
Drainage class: Excessively drained

Typical Profile

A—0 to 1 inch; fine sand
 C—1 to 60 inches; stratified fine sand to loamy fine sand

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Haynie soils in landform positions similar to those of the Sarpy soil

66026—Blake loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

Landform: Flood plains

Component Description

Blake

Percent of the map unit: 85 percent
Parent material: Fine-silty alluvium
Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: Low
Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Occasional
Ponding: None

Current depth to water table: 24 to 48 inches

Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 8 inches; loam

C—8 to 60 inches; stratified very fine sandy loam to silt loam to silty clay loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Haynie soils in the slightly higher areas
- Waldron soils in depressions

66027—Haynie very fine sandy loam, 0 to 2 percent slopes, frequently flooded

Map Unit Setting

Landform: Flood plains

Component Description

Haynie

Percent of the map unit: 85 percent

Parent material: Silty alluvium

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Negligible

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Frequent

Ponding: None

Current depth to water table: More than 6 feet

Drainage class: Well drained

Typical Profile

A—0 to 6 inches; very fine sandy loam

C—6 to 80 inches; silt loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Blake soils in depressions
- Soils that have more sand than the Haynie soil; in landform positions similar to those of the Haynie soil

66028—Leta silty clay loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

Landform: Flood plains

Component Description

Leta

Percent of the map unit: 90 percent

Parent material: Clayey alluvium over loamy alluvium

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: High

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Occasional

Ponding: None

Current depth to water table: 12 to 36 inches

Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 9 inches; silty clay loam

A—9 to 14 inches; silty clay

Bw—14 to 22 inches; silty clay

2C—22 to 80 inches; stratified very fine sandy loam to loam to silt loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Haynie soils in the slightly higher areas
- Waldron soils in the slightly lower areas

70023—Eldon silt loam, 3 to 8 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Eldon

Percent of the map unit: 90 percent

Position on the landform: Backslopes

Parent material: Clayey residuum derived from dolostone

Slope shape: Convex

Component Properties and Qualities*Depth to bedrock:* Very deep (more than 60 inches)*Runoff rate:* Medium*Depth to restrictive feature:* More than 60 inches**Component Hydrologic Properties***Flooding:* None*Ponding:* None*Current depth to water table:* More than 6 feet*Drainage class:* Well drained**Typical Profile**

A—0 to 9 inches; silt loam

BA—9 to 17 inches; very gravelly silt loam

Bt—17 to 60 inches; very gravelly silty clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Arkana soils on summits and knobs
- Maplewood soils on the lower slopes and broader summits

70029—Moko-Rock outcrop complex, 15 to 50 percent slopes, very stony**Map Unit Setting***Landform:* Hills**Component Description****Moko***Percent of the map unit:* 80 percent*Position on the landform:* Backslopes*Parent material:* Gravelly residuum derived from dolostone*Slope shape:* Convex**Component Properties and Qualities***Depth to bedrock:* Very shallow and shallow (4 to 20 inches)*Runoff rate:* Very high*Percent of surface covered by rock fragments:* 0.10 to 3.0 percent (subrounded stones)*Depth to restrictive feature:* 4 to 20 inches to bedrock (lithic)**Component Hydrologic Properties***Flooding:* None*Ponding:* None*Current depth to water table:* More than 6 feet*Drainage class:* Well drained**Typical Profile**

A1—0 to 4 inches; gravelly clay loam

A2—4 to 7 inches; very channery clay loam

R—7 to 60 inches; unweathered bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Rock outcrop*Percent of the map unit:* 15 percent*Position on the landform:* Backslopes*Slope shape:* Convex**Additional Components**

- Gatewood soils in landform positions similar to those of the Moko soil

70046—Sacville silt loam, 2 to 5 percent slopes**Map Unit Setting***Landform:* Hills**Component Description****Sacville***Percent of the map unit:* 90 percent*Position on the landform:* Toeslopes*Parent material:* Clayey colluvium derived from dolostone*Slope shape:* Concave**Component Properties and Qualities***Depth to bedrock:* Very deep (more than 60 inches)*Runoff rate:* High*Depth to restrictive feature:* More than 60 inches**Component Hydrologic Properties***Flooding:* None*Ponding:* None*Current depth to water table:* 0 to 12 inches*Drainage class:* Poorly drained**Typical Profile**

Ap—0 to 7 inches; silt loam

AB—7 to 13 inches; silt loam

Btg1—13 to 27 inches; silty clay loam

Btg2—27 to 60 inches; silty clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Hacreek soils on the lower backslopes
- Maplewood soils on the upper backslopes

73012—Gravois silt loam, 3 to 8 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Gravois

Percent of the map unit: 90 percent
Position on the landform: Summits and shoulders
Parent material: Fine-silty loess over gravelly residuum derived from dolostone
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: High
Depth to restrictive feature: 18 to 40 inches to dense material

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: 18 to 36 inches
Drainage class: Moderately well drained

Typical Profile

Ap—0 to 6 inches; silt loam
 Bt—6 to 25 inches; silty clay loam
 2Btx—25 to 35 inches; silty clay loam
 3Bt1—35 to 50 inches; very gravelly silty clay loam
 4Bt2—50 to 80 inches; very cobbly clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Caneyville and Moko soils on knobs
- Gatewood soils on southwest-facing slopes and on knobs
- Gravois soils that have slopes of 8 to 15 percent
- Wrengart soils in landform positions similar to those

of the Gravois soil; in the northern part of the distribution area

73035—Gravois silt loam, 8 to 15 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Gravois

Percent of the map unit: 90 percent
Position on the landform: Backslopes
Parent material: Fine-silty loess over gravelly residuum derived from dolostone
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: High
Depth to restrictive feature: 18 to 40 inches to dense material

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: 18 to 36 inches
Drainage class: Moderately well drained

Typical Profile

Ap—0 to 6 inches; silt loam
 Bt—6 to 25 inches; silty clay loam
 2Btx—25 to 35 inches; silty clay loam
 3Bt1—35 to 50 inches; very gravelly silty clay loam
 4Bt2—50 to 80 inches; very cobbly clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Cotton soils in concave areas
- Gatewood and Moko soils on southwest-facing slopes
- Rueter soils on the lower slopes

73040—Maplewood silt loam, 2 to 5 percent slopes, eroded

Map Unit Setting

Landform: Hills

Component Description

Maplewood

Percent of the map unit: 95 percent

Position on the landform: Summits and shoulders

Parent material: Clayey loess over clayey residuum derived from dolomite

Slope shape: Concave

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Medium

Depth to restrictive feature: 16 to 40 inches to dense material

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: 12 to 24 inches

Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 8 inches; silt loam

Bt—8 to 17 inches; silty clay

2Btx—17 to 32 inches; silty clay loam

3Bt—32 to 60 inches; gravelly silty clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Arkana and Eldon soils on shoulders
- Maplewood soils that have a surface layer of silty clay loam; in landform positions similar to those of the major Maplewood soil

73041—Maplewood silt loam, 5 to 9 percent slopes, eroded

Map Unit Setting

Landform: Hills

Component Description

Maplewood

Percent of the map unit: 90 percent

Position on the landform: Backslopes and shoulders

Parent material: Clayey loess over clayey residuum derived from dolomite

Slope shape: Concave

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: High

Depth to restrictive feature: 16 to 40 inches to dense material

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: 12 to 24 inches

Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 6 inches; silt loam

Bt—6 to 17 inches; silty clay loam

2Btx—17 to 32 inches; silty clay loam

3Bt—32 to 60 inches; gravelly silty clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Eldon soils on the upper backslopes
- Sacville soils on the lower backslopes

73042—Niangua-Bardley complex, 15 to 50 percent slopes, extremely stony

Map Unit Setting

Landform: Hills

Component Description

Niangua

Percent of the map unit: 60 percent

Position on the landform: Backslopes

Parent material: Gravelly colluvium over clayey residuum derived from dolostone

Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Deep (40 to 60 inches)

Runoff rate: Very high

Percent of surface covered by rock fragments: 3 to 15 percent (subrounded stones)

Depth to restrictive feature: 40 to 60 inches to bedrock (lithic)

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: More than 6 feet

Drainage class: Well drained

Typical Profile

A—0 to 3 inches; very gravelly silt loam

E—3 to 14 inches; very gravelly silt loam

2Bt—14 to 52 inches; gravelly clay

2R—52 to 60 inches; unweathered bedrock

Bardley

Percent of the map unit: 30 percent

Position on the landform: Backslopes

Parent material: Gravelly colluvium over clayey residuum derived from dolostone

Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Moderately deep (20 to 40 inches)

Runoff rate: Very high

Percent of surface covered by rock fragments: 3 to 15 percent (subrounded stones)

Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: More than 6 feet

Drainage class: Well drained

Typical Profile

A—0 to 4 inches; very gravelly silt loam

E—4 to 8 inches; extremely gravelly silt loam

2Bt—8 to 27 inches; clay

2R—27 to 60 inches; unweathered bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Gunlock soils on footslopes
- Moko soils on southwest-facing slopes and on shoulders and knobs
- Rueter soils on the lower backslopes

73048—Rueter gravelly silt loam, 3 to 8 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Rueter

Percent of the map unit: 90 percent

Position on the landform: Summits and shoulders

Parent material: Gravelly colluvium over gravelly residuum derived from dolostone

Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Low

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: More than 6 feet

Drainage class: Somewhat excessively drained

Typical Profile

A—0 to 3 inches; gravelly silt loam

E—3 to 14 inches; very gravelly silt loam

Bt1—14 to 45 inches; very gravelly loam

2Bt2—45 to 86 inches; very gravelly clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Bardley soils on shoulders
- Gravois soils on summits

73050—Rock outcrop-Bardley complex, 35 to 99 percent slopes, extremely stony

Map Unit Setting

Landform: Hills

Component Description

Rock outcrop

Percent of the map unit: 55 percent

Position on the landform: Backslopes

Slope shape: Convex

Component Properties and Qualities

Runoff rate: Very high

Bardley

Percent of the map unit: 35 percent

Position on the landform: Backslopes
Parent material: Gravelly colluvium over clayey
 residuum derived from dolostone
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Moderately deep (20 to 40 inches)
Runoff rate: Very high
Percent of surface covered by rock fragments: 3 to 15
 percent (subrounded stones)
Depth to restrictive feature: 20 to 40 inches to bedrock
 (lithic)

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: More than 6 feet
Drainage class: Well drained

Typical Profile

A—0 to 4 inches; very gravelly silt loam
 E—4 to 8 inches; extremely gravelly silt loam
 2Bt—8 to 27 inches; clay
 2R—27 to 60 inches; unweathered bedrock

Detailed profile descriptions are given in the
 “Classification of the Soils” section. Additional
 information is provided in the tables described under
 the heading “Soil Properties.”

Additional Components

- Moko soils at the perimeters of delineations adjacent to the Bardley soil
- Niangua soils between ledges of rock outcrop

73088—Rueter very gravelly silt loam, 8 to 15 percent slopes, very stony

Map Unit Setting

Landform: Hills

Component Description

Rueter

Percent of the map unit: 85 percent
Position on the landform: Shoulders
Parent material: Gravelly colluvium over gravelly
 residuum derived from dolostone
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: Low

Percent of surface covered by rock fragments: 0.10 to
 3.0 percent (subrounded stones)
Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: More than 6 feet
Drainage class: Somewhat excessively drained

Typical Profile

A—0 to 3 inches; very gravelly silt loam
 E—3 to 14 inches; very gravelly silt loam
 Bt1—14 to 45 inches; extremely cobbly loam
 2Bt2—45 to 80 inches; extremely cobbly clay

Detailed profile descriptions are given in the
 “Classification of the Soils” section. Additional
 information is provided in the tables described under
 the heading “Soil Properties.”

Additional Components

- Gravois soils on north-facing slopes and on microsummits
- Niangua soils on the lower slopes
- Rueter soils that have slopes of 3 to 8 percent; on summits

73089—Rueter very gravelly silt loam, 15 to 35 percent slopes, very stony

Map Unit Setting

Landform: Hills

Component Description

Rueter

Percent of the map unit: 85 percent
Position on the landform: Backslopes
Parent material: Gravelly colluvium over gravelly
 residuum derived from dolostone
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: Medium
Percent of surface covered by rock fragments: 0.10 to
 3.0 percent (subrounded stones)
Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None
Ponding: None

Current depth to water table: More than 6 feet
Drainage class: Somewhat excessively drained

Typical Profile

A—0 to 3 inches; very gravelly silt loam
 E—3 to 14 inches; very gravelly silt loam
 Bt1—14 to 45 inches; extremely cobbly loam
 2Bt2—45 to 80 inches; extremely cobbly clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Cedargap soils in small areas of bottom land
- Gravois soils on north-facing slopes and on footslopes
- Niangua soils on the lower slopes
- Rueter soils that have a surface layer of bouldery silt loam; in landform positions similar to those of the major Rueter soil

73095—Gravois silt loam, 15 to 20 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Gravois

Percent of the map unit: 90 percent
Position on the landform: Backslopes
Parent material: Fine-silty loess over gravelly residuum derived from dolostone
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: High
Depth to restrictive feature: 18 to 40 inches to dense material

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: 18 to 36 inches
Drainage class: Moderately well drained

Typical Profile

Ap—0 to 6 inches; silt loam
 Bt—6 to 25 inches; silty clay loam
 2Btx—25 to 35 inches; silty clay loam

3Bt1—35 to 50 inches; very gravelly silty clay loam
 4Bt2—50 to 80 inches; very cobbly clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Gatewood and Moko soils on southwest-facing slopes
- Rueter soils on the lower backslopes

73101—Wrengart silt loam, 5 to 9 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Wrengart

Percent of the map unit: 90 percent
Position on the landform: Summits
Parent material: Fine-silty loess over clayey residuum derived from dolostone
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)
Runoff rate: Medium
Depth to restrictive feature: 20 to 40 inches to dense material

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: 24 to 42 inches
Drainage class: Moderately well drained

Typical Profile

Ap—0 to 8 inches; silt loam
 Bt—8 to 36 inches; silty clay loam
 2Btx—36 to 61 inches; silty clay loam
 3Bt—61 to 80 inches; gravelly silty clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Gatewood soils on shoulders and knobs
- Gravois soils in the southern part of the survey area

- Wrengart soils that have slopes of 2 to 5 percent; in the center of delineations
- Wrengart soils that have slopes of 9 to 14 percent; on the lower slopes
- Wrengart soils that are moderately eroded

73112—Gunlock silt loam, 3 to 8 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Gunlock

Percent of the map unit: 90 percent

Position on the landform: Backslopes

Parent material: Clayey loess over gravelly residuum derived from dolostone

Slope shape: Concave

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: High

Depth to restrictive feature: 20 to 34 inches to dense material

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: 18 to 36 inches

Drainage class: Moderately well drained

Typical Profile

Ap—0 to 5 inches; silt loam

Bt—5 to 25 inches; silty clay loam

2Btx—25 to 43 inches; silty clay loam

3Bt1—43 to 55 inches; extremely gravelly silty clay loam

3Bt2—55 to 80 inches; gravelly silty clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Freeburg soils in the lower parts of delineations

73250—Gatewood-Moko complex, 3 to 8 percent slopes, very stony

Map Unit Setting

Landform: Hills

Component Description

Gatewood

Percent of the map unit: 50 percent

Position on the landform: Backslopes

Parent material: Gravelly colluvium over clayey residuum derived from dolostone

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Moderately deep (20 to 40 inches)

Runoff rate: Very high

Percent of surface covered by rock fragments: 0.10 to 3.0 percent (subrounded stones)

Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: 18 to 36 inches

Drainage class: Moderately well drained

Typical Profile

A—0 to 3 inches; gravelly silt loam

E—3 to 9 inches; very gravelly silt loam

2Bt—9 to 24 inches; gravelly clay

2R—24 to 60 inches; unweathered bedrock

Moko

Percent of the map unit: 35 percent

Position on the landform: Backslopes

Parent material: Gravelly residuum derived from dolostone

Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very shallow and shallow (4 to 20 inches)

Runoff rate: Very high

Percent of surface covered by rock fragments: 0.10 to 3.0 percent (subrounded stones)

Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: More than 6 feet

Drainage class: Well drained

Typical Profile

A1—0 to 3 inches; gravelly loam

A2—3 to 8 inches; very gravelly loam

R—8 to 60 inches; unweathered bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Caneyville soils on summits and the lower backslopes
- Gravois soils on summits and the lower slopes
- Ocie soils on the lower slopes
- Areas of rock outcrop in landform positions similar to those of the major soils

73251—Gatewood-Moko complex, 8 to 20 percent slopes, very stony

Map Unit Setting

Landform: Hills

Component Description

Gatewood

Percent of the map unit: 50 percent

Position on the landform: Backslopes

Parent material: Gravelly colluvium over clayey residuum derived from dolostone

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Moderately deep (20 to 40 inches)

Runoff rate: Very high

Percent of surface covered by rock fragments: 0.10 to 3.0 percent (subrounded stones)

Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: 18 to 36 inches

Drainage class: Moderately well drained

Typical Profile

A—0 to 3 inches; gravelly silt loam

E—3 to 9 inches; very gravelly silt loam

2Bt—9 to 24 inches; gravelly clay

2R—24 to 60 inches; unweathered bedrock

Moko

Percent of the map unit: 40 percent

Position on the landform: Backslopes

Parent material: Gravelly residuum derived from dolostone

Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very shallow and shallow (4 to 20 inches)

Runoff rate: Very high

Percent of surface covered by rock fragments: 0.10 to 3.0 percent (subrounded stones)

Depth to restrictive feature: 4 to 20 inches to bedrock (lithic)

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: More than 6 feet

Drainage class: Well drained

Typical Profile

A1—0 to 3 inches; gravelly loam

A2—3 to 8 inches; very gravelly loam

R—8 to 60 inches; unweathered bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Gunlock soils on footslopes
- Ocie soils in landform positions similar to those of the major soils
- Areas of rock outcrop in landform positions similar to those of the major soils

73253—Ocie gravelly silt loam, 3 to 8 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Ocie

Percent of the map unit: 85 percent

Position on the landform: Summits and shoulders

Parent material: Gravelly colluvium over residuum derived from dolostone

Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Deep (40 to 60 inches)

Runoff rate: High

Depth to restrictive feature: 40 to 60 inches to bedrock (lithic)

Component Hydrologic Properties*Flooding:* None*Ponding:* None*Current depth to water table:* 24 to 40 inches*Drainage class:* Moderately well drained**Typical Profile**

A—0 to 3 inches; gravelly silt loam

E—3 to 13 inches; extremely gravelly silt loam

Bt1—13 to 20 inches; extremely gravelly loam

2Bt2—20 to 48 inches; clay

2R—48 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Gatewood and Rueter soils in landform positions similar to those of the Ocie soil
- Gravois soils on summits
- Moko soils on southwest-facing slopes

73254—Ocie gravelly silt loam, 8 to 15 percent slopes, very stony**Map Unit Setting***Landform:* Hills**Component Description****Ocie***Percent of the map unit:* 85 percent*Position on the landform:* Backslopes*Parent material:* Gravelly colluvium over residuum derived from dolostone*Slope shape:* Convex**Component Properties and Qualities***Depth to bedrock:* Deep (40 to 60 inches)*Runoff rate:* Very high*Percent of surface covered by rock fragments:* 0.10 to 3.0 percent (subrounded stones)*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)**Component Hydrologic Properties***Flooding:* None*Ponding:* None*Current depth to water table:* 24 to 40 inches*Drainage class:* Moderately well drained**Typical Profile**

A—0 to 3 inches; gravelly silt loam

E—3 to 13 inches; extremely gravelly silt loam

Bt1—13 to 20 inches; extremely gravelly loam

2Bt2—20 to 48 inches; clay

2R—48 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Eldon soils on shoulders and the upper backslopes
- Gatewood and Rueter soils in landform positions similar to those of the Ocie soil
- Gravois soils on north-facing slopes

73255—Ocie very gravelly silt loam, 15 to 35 percent slopes, extremely stony**Map Unit Setting***Landform:* Hills**Component Description****Ocie***Percent of the map unit:* 85 percent*Position on the landform:* Backslopes*Parent material:* Gravelly colluvium over clayey residuum derived from dolostone*Slope shape:* Convex**Component Properties and Qualities***Depth to bedrock:* Deep (40 to 60 inches)*Runoff rate:* Very high*Percent of surface covered by rock fragments:* 3 to 15 percent (subrounded stones)*Depth to restrictive feature:* 40 to 60 inches to bedrock (lithic)**Component Hydrologic Properties***Flooding:* None*Ponding:* None*Current depth to water table:* 24 to 40 inches*Drainage class:* Moderately well drained**Typical Profile**

A—0 to 7 inches; very gravelly silt loam

E—7 to 16 inches; very gravelly silt loam

Bt1—16 to 23 inches; very gravelly loam

2Bt2—23 to 58 inches; clay

2R—58 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Gatewood soils on south- and west-facing slopes
- Gravois soils on the lower slopes
- Rueter soils in landform positions similar to those of the Ocie soil

73256—Arkana gravelly silt loam, 3 to 8 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Arkana

Percent of the map unit: 85 percent
Position on the landform: Summits and backslopes
Parent material: Gravelly colluvium over clayey residuum derived from dolostone
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Moderately deep (20 to 40 inches)
Runoff rate: High
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: More than 6 feet
Drainage class: Well drained

Typical Profile

A—0 to 8 inches; gravelly silt loam
 E—8 to 14 inches; very gravelly silt loam
 2Bt—14 to 33 inches; clay
 2R—33 to 60 inches; unweathered bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Arkana soils that have a surface layer of silt loam; in landform positions similar to those of the major Arkana soil

- Eldon soils in landform positions similar to those of the Arkana soil

73257—Caneyville silty clay loam, 3 to 8 percent slopes, eroded

Map Unit Setting

Landform: Hills

Component Description

Caneyville

Percent of the map unit: 85 percent
Position on the landform: Summits
Parent material: Clayey residuum derived from dolostone
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Moderately deep (20 to 40 inches)
Runoff rate: Very high
Depth to restrictive feature: 20 to 40 inches to bedrock (lithic)

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: More than 6 feet
Drainage class: Well drained

Typical Profile

Ap—0 to 7 inches; silty clay loam
 Bt—7 to 36 inches; silty clay
 R—36 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Gatewood soils on southwest-facing slopes and on knobs
- Gravois soils on summits and shoulders

73258—Cotton silt loam, 1 to 3 percent slopes, eroded

Map Unit Setting

Landform: Hills

Component Description

Cotton

Percent of the map unit: 90 percent

Position on the landform: Summits

Parent material: Loess over silty colluvium over clayey residuum derived from dolomite

Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: High

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: 6 to 18 inches

Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 9 inches; silt loam

Bt1—9 to 14 inches; silt loam

Bt2—14 to 27 inches; silty clay

2Btx1—27 to 49 inches; silt loam

3Btx2—49 to 66 inches; extremely gravelly silt loam

4Bt—66 to 80 inches; very gravelly clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Gravois soils on convex summits
- Hartville soils on the lower slopes

73259—Cotton silt loam, 3 to 8 percent slopes, eroded

Map Unit Setting

Landform: Hills

Component Description

Cotton

Percent of the map unit: 90 percent

Position on the landform: Backslopes

Parent material: Loess over silty colluvium over clayey residuum derived from dolomite

Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Very high

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: 6 to 18 inches

Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 9 inches; silt loam

Bt1—9 to 14 inches; silt loam

Bt2—14 to 27 inches; silty clay

2Btx1—27 to 49 inches; silt loam

3Btx2—49 to 66 inches; extremely gravelly silt loam

4Bt—66 to 80 inches; very gravelly clay

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Soils that are less than 60 inches deep to bedrock; in landform positions similar to those of the Cotton soil
- Wrengart soils in convex areas

73260—Maplewood silt loam, 2 to 5 percent slopes, bedrock substratum

Map Unit Setting

Landform: Hills

Component Description

Maplewood

Percent of the map unit: 90 percent

Position on the landform: Summits

Parent material: Clayey loess over clayey residuum derived from dolomite

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Deep (40 to 60 inches)

Runoff rate: High

Depth to restrictive feature: 16 to 40 inches to dense material; 48 to 59 inches to bedrock (lithic)

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: 12 to 24 inches

Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 7 inches; silt loam

EB—7 to 11 inches; silt loam
 Bt—11 to 19 inches; silty clay
 2Btx1—19 to 29 inches; silt loam
 2Btx2—29 to 35 inches; extremely gravelly silty clay loam
 3Bt—35 to 52 inches; clay
 3R—52 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Eldon soils on shoulders
- Maplewood soils that are eroded; in landform positions similar to those of the major Maplewood soil
- Maplewood soils that are more than 60 inches deep to bedrock; in landform positions similar to those of the major Maplewood soil

73261—Wrengart silt loam, 5 to 9 percent slopes, bedrock substratum

Map Unit Setting

Landform: Hills

Component Description

Wrengart

Percent of the map unit: 90 percent
Position on the landform: Summits
Parent material: Fine-silty loess over clayey residuum derived from dolostone
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (60 to 80 inches)
Runoff rate: Medium
Depth to restrictive feature: 20 to 40 inches to dense material; 60 to 80 inches to bedrock (lithic)

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: 24 to 42 inches
Drainage class: Moderately well drained

Typical Profile

Ap—0 to 8 inches; silt loam
 Bt—8 to 36 inches; silty clay loam
 2Btx—36 to 61 inches; silty clay loam
 3Bt—61 to 77 inches; gravelly silty clay
 3R—77 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Gatewood soils on shoulders and knobs
- Gravois soils in the southern part of the distribution area
- Wrengart soils that have slopes of 2 to 5 percent; in the center of delineations
- Wrengart soils that have slopes of 9 to 14 percent; on the lower slopes
- Wrengart soils that are moderately eroded; in landform positions similar to those of the major Wrengart soil

73262—Wrengart silt loam, 9 to 14 percent slopes, bedrock substratum

Map Unit Setting

Landform: Hills

Component Description

Wrengart

Percent of the map unit: 85 percent
Position on the landform: Backslopes
Parent material: Fine-silty loess over clayey residuum derived from dolostone
Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (60 to 80 inches)
Runoff rate: Medium
Depth to restrictive feature: 20 to 40 inches to dense material; 60 to 80 inches to bedrock (lithic)

Component Hydrologic Properties

Flooding: None
Ponding: None
Current depth to water table: 24 to 42 inches
Drainage class: Moderately well drained

Typical Profile

Ap—0 to 5 inches; silt loam
 Bt—5 to 30 inches; silty clay loam
 2Btx—30 to 62 inches; silty clay loam
 3Bt—62 to 77 inches; gravelly silty clay
 3R—77 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional

information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Gatewood soils on shoulders and the lower backslopes
- Gravois soils in the southern part of the distribution area
- Wrengart soils that have a surface layer of silty clay loam; in landform positions similar to those of the major Wrengart soil

73263—Wrengart silt loam, 14 to 20 percent slopes, eroded, bedrock substratum

Map Unit Setting

Landform: Hills

Component Description

Wrengart

Percent of the map unit: 90 percent

Position on the landform: Backslopes

Parent material: Fine-silty loess over clayey residuum derived from dolostone

Slope shape: Convex

Component Properties and Qualities

Depth to bedrock: Very deep (60 to 80 inches)

Runoff rate: Medium

Depth to restrictive feature: 20 to 40 inches to dense material; 60 to 80 inches to bedrock (lithic)

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: 24 to 42 inches

Drainage class: Moderately well drained

Typical Profile

Ap—0 to 5 inches; silt loam

Bt—5 to 30 inches; silty clay loam

2Btx—30 to 62 inches; silt loam

3Bt—62 to 77 inches; gravelly silty clay

3R—77 to 80 inches; unweathered bedrock

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Gatewood soils in incised drainageways
- Gravois soils in the southern part of the distribution area
- Wrengart soils that are not eroded; in landform positions similar to those of the major Wrengart soil

74634—Hartville silt loam, 3 to 8 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Hartville

Percent of the map unit: 90 percent

Position on the landform: Footslopes

Parent material: Clayey colluvium

Slope shape: Concave

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Very high

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding: None

Ponding: None

Current depth to water table: 12 to 24 inches

Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 7 inches; silt loam

BE—7 to 12 inches; silt loam

Bt1—12 to 48 inches; silty clay loam

2Bt2—48 to 80 inches; silty clay loam

Detailed profile descriptions are given in the "Classification of the Soils" section. Additional information is provided in the tables described under the heading "Soil Properties."

Additional Components

- Cedargap soils on small flood plains
- Freeburg soils in landform positions similar to those of the Hartville soil
- Hartville soils that are subject to occasional flooding; along the Moreau River
- McGirk soils in the lower parts of delineations

74659—Deible silt loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

Landform: Stream terraces

Component Description

Deible

Percent of the map unit: 90 percent

Position on the landform: Treads

Parent material: Clayey alluvium

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: High

Depth to restrictive feature: 9 to 22 inches to abrupt textural change

Component Hydrologic Properties

Flooding frequency: Occasional

Ponding: None

Current depth to water table: 0 to 12 inches

Drainage class: Poorly drained

Typical Profile

Ap—0 to 7 inches; silt loam

E—7 to 13 inches; silt loam

Btg—13 to 80 inches; silty clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Moniteau soils in landform positions similar to those of the Deible soil
- Tanglenook soils in swales

74678—Racoon silt loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

Landform: Stream terraces

Component Description

Racoon

Percent of the map unit: 85 percent

Position on the landform: Treads

Parent material: Fine-silty alluvium

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: High

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Occasional

Ponding: None

Current depth to water table: 0 to 12 inches

Drainage class: Poorly drained

Typical Profile

Ap—0 to 6 inches; silt loam

Eg—6 to 28 inches; silt loam

Btg—28 to 58 inches; silt loam

Cg—58 to 80 inches; silty clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Deible soils in landform positions similar to those of the Racoon soil
- Freeburg soils in convex areas and at the edges of delineations

75376—Cedargap gravelly silt loam, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

Landform: Flood plains

Component Description

Cedargap

Percent of the map unit: 90 percent

Parent material: Gravelly alluvium

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Low

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Frequent

Ponding: None

Current depth to water table: 42 to 60 inches

Drainage class: Well drained

Typical Profile

Ap—0 to 9 inches; gravelly silt loam

A—9 to 49 inches; very gravelly loam
2C—49 to 60 inches; clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Cedargap soils that have a surface layer of silt loam
- Freeburg and Jemerson soils on the slightly higher stream terraces
- Racket soils in the higher areas away from channels

75387—Hacreek silt loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Setting

Landform: Stream terraces

Component Description

Hacreek

Percent of the map unit: 90 percent

Position on the landform: Treads

Parent material: Fine-silty alluvium

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Low

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Occasional

Ponding: None

Current depth to water table: 12 to 24 inches

Drainage class: Somewhat poorly drained

Typical Profile

Ap—0 to 9 inches; silt loam

Bt—9 to 21 inches; silty clay loam

Btg1—21 to 28 inches; silty clay loam

Btg2—28 to 70 inches; silty clay loam

Btg3—70 to 81 inches; silty clay loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Moniteau soils at the slightly higher elevations
- Tanglenook soils in depressions

75399—Jamesfin silt loam, 0 to 3 percent slopes, frequently flooded

Map Unit Setting

Landform: Flood plains

Component Description

Jamesfin

Percent of the map unit: 90 percent

Parent material: Fine-silty alluvium

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Low

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Frequent

Ponding: None

Current depth to water table: 48 to 72 inches

Drainage class: Well drained

Typical Profile

Ap—0 to 10 inches; silt loam

Bw—10 to 60 inches; silt loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Dockery soils in swales and abandoned meanders
- Racket soils at the upper reaches of delineations

75415—Jemerson silt loam, 0 to 3 percent slopes, occasionally flooded

Map Unit Setting

Landform: Stream terraces

Component Description

Jemerson

Percent of the map unit: 90 percent

Position on the landform: Treads

Parent material: Fine-silty alluvium

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Low

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Occasional

Ponding: None

Current depth to water table: 42 to 60 inches

Drainage class: Well drained

Typical Profile

Ap—0 to 9 inches; silt loam

Bt—9 to 50 inches; silt loam

2C—50 to 60 inches; gravelly loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Dockery soils in the lower concave areas
- Freeburg soils in concave areas and in areas adjacent to the uplands
- Jamesfin soils in the lower areas

75456—Racket silt loam, 0 to 3 percent slopes, frequently flooded, clayey substratum

Map Unit Setting

Landform: Flood plains

Component Description

Racket

Percent of the map unit: 85 percent

Parent material: Loamy alluvium

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Low

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Frequent

Ponding: None

Current depth to water table: 42 to 72 inches

Drainage class: Well drained

Typical Profile

Ap—0 to 5 inches; silt loam

Bw1—5 to 30 inches; silt loam

2Bw2—30 to 68 inches; very gravelly sandy clay loam

3Bw3—68 to 80 inches; very gravelly clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Cedargap soils in areas adjacent to stream channels
- Freeburg and Jemerson soils on the slightly higher stream terraces
- Jamesfin soils in landform positions similar to those of the Racket soil

75457—Urban land-Jamesfin complex, 0 to 3 percent slopes, occasionally flooded

Map Unit Setting

Landform: Flood plains

Component Description

Urban land

Percent of the map unit: 55 percent

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Very high

Component Hydrologic Properties

Flooding frequency: Rare

Ponding: None

Current depth to water table: More than 6 feet

Jamesfin and similar soils

Percent of the map unit: 35 percent

Parent material: Fine-silty alluvium

Slope shape: Linear

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: Low

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Occasional

Ponding: None

Current depth to water table: 48 to 72 inches

Drainage class: Well drained

Typical Profile

Ap—0 to 10 inches; silt loam
Bw—10 to 60 inches; silt loam

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Areas of disturbed soil material; in landform positions similar to those of the Jamesfin soil

75458—Tanglenook silty clay loam, 0 to 2 percent slopes, occasionally flooded**Map Unit Setting**

Landform: Stream terraces

Component Description**Tanglenook**

Percent of the map unit: 90 percent

Position on the landform: Treads

Parent material: Clayey alluvium

Slope shape: Linear



Figure 9.—An area of Pits, quarries. This map unit consists of areas from which dolomitic limestone has been mined for agricultural lime, concrete, gravel, or other construction materials.

Component Properties and Qualities

Depth to bedrock: Very deep (more than 60 inches)

Runoff rate: High

Depth to restrictive feature: More than 60 inches

Component Hydrologic Properties

Flooding frequency: Occasional

Ponding: None

Current depth to water table: 0 to 18 inches

Drainage class: Poorly drained

Typical Profile

Ap—0 to 7 inches; silty clay loam

A—7 to 16 inches; silty clay

Btg—16 to 60 inches; clay

Detailed profile descriptions are given in the “Classification of the Soils” section. Additional information is provided in the tables described under the heading “Soil Properties.”

Additional Components

- Deible soils at the edges of delineations
- Hacreek soils in landform positions similar to those of the Tanglenook soil
- Tanglenook soils that have a surface layer of silty clay

99000—Pits, quarries

Component Description

Pits, quarries

Percent of the map unit: 95 percent

Additional Components

- Areas of processed/stockpiled stone (fig. 9)

99001—Water

Component Description

- This map unit consists of naturally occurring basins of surface water, such as perennial rivers and creeks. It also includes manmade lakes and ponds that are larger than 5 acres.

99012—Urban land, 3 to 15 percent slopes

Map Unit Setting

Landform: Hills

Component Description

Urban land

Percent of the map unit: 90 percent

Position on the landform: Backslopes

Slope shape: Linear

Component Properties and Qualities

Runoff rate: Very high

Additional Components

- Harvester soils and Udorthents; in areas throughout the delineations

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment. The survey can help planners to maintain or create a land use pattern that is in harmony with nature.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various land uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited or not limited by all of the soil features that affect a specified use. Terms for the limitation classes are *not limited*, *slightly limited*, *moderately limited*, *limited*, and *very limited*. In certain tables the soils are rated as *improbable*, *possible*, or *probable* sources of specific materials used for construction purposes.

Numerical Ratings

Numerical ratings in the tables indicate the severity of individual limitations. They also indicate the overall degree to which a soil is limited or not limited for a specific use. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

In tables that use limitation class terms, such as *very limited* or *limited*, the limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each map unit component. The overall limitation rating for the component is based on the most severe limitation.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. Prime farmland is described, the estimated yields of the main crops and pasture plants are listed, and the system of land

capability classification used by the Natural Resources Conservation Service is explained.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

In 1997, approximately 111,100 acres in Cole County was used for pasture and 15,800 acres was used as hayland (USDA, 1997). About 80,600 acres was forestland. Approximately 20,900 acres was used for urban development, and 6,100 acres was roads and railroads. About 19 percent of the county (48,625 acres) is prime farmland.

Crops

Field crops, though not extensively grown, are very significant in Cole County. In 1999, soybeans were harvested on about 9,300 acres, corn was harvested on 5,900 acres, and wheat or grain sorghum was harvested on most of the rest of the cultivated acreage (Missouri Agricultural Statistics Service, 2000). Small acreages of oats, barley, and rye also were grown.

Most of the corn and soybeans are grown on the flood plains (fig. 10). Many areas of the more droughty soils, primarily in the uplands, are used for grain sorghum, wheat, grass, or grass-legume pasture and hay.

The potential for increased crop production in Cole County is good. Production can be increased by applying the latest agricultural technology on all cropland in the county. This soil survey can facilitate the application of such technology.

Erosion on Cropland

Erosion is the major hazard in nearly all areas of sloping cropland and overgrazed pastureland in Cole County. All soils that have slopes of more than 2 percent are susceptible to damage from erosion.

Erosion results in the gradual loss of the surface layer and thus reduces productivity of the soil. Damage can be especially serious in areas of soils that have a clayey subsoil, which becomes mixed with the plow layer as a result of erosion. Tillage and seedbed preparation are difficult in areas that are clayey as a result of erosion, and germination rates decline. Caneyville, Cotton, Gunlock, Hartville, Maplewood, McGirk, and Sacville soils are susceptible to erosion and have a clayey subsoil. Erosion also reduces the productivity of soils in which the rooting depth is restricted by dense layers in the subsoil or by

bedrock, such as Arkana, Bardley, Caneyville, Cotton, Gatewood, Maplewood, Moko, and Ocie soils. The dense layers or bedrock effectively reduces the volume of soil available to supply water and nutrients.

Erosion also removes valuable slow-release nutrients in the topsoil. In 1990, the nutrients in a ton of topsoil were worth about \$5 or \$6. At that rate, unprotected fields in the uplands can lose nutrients worth \$200 to \$240 each year.

Erosion on farmland results in the sedimentation of streams, lakes, ponds, and road ditches. Controlling this erosion minimizes the pollution of streams by sediment and collateral pesticides and thus improves the quality of water for municipal and recreational uses and for fish and wildlife. It also prolongs the useful life of ponds, lakes, and roadside ditches by preventing them from being filled with sediment.

Erosion-Control Practices

Erosion-control practices provide a protective surface cover, reduce the runoff rate, and increase the rate of water infiltration. A cropping system that keeps vegetative cover or crop residue on the soil surface can hold erosion losses to amounts that will not reduce the productive capacity of the soil. Growing grasses and legumes for pasture and hay is very effective in controlling erosion. Including grasses and legumes in the crop rotations also improves tilth and provides nitrogen for the following crop.

Significant reductions in soil loss can be accomplished by basic management techniques. Farming on the contour reduces soil loss by as much as 50 percent.

Conservation tillage is a management practice in which the amount of tillage is limited so that at least 30 percent of the soil surface is covered with residue after the crop is planted. The residue controls erosion by buffering the impact of raindrops, which can dislodge unprotected topsoil. Also, the runoff rate is reduced so that soil particles are less likely to be removed from the field. The more residue is left on the surface, the more effective the system becomes. Conservation tillage is well suited to all of the upland soils that are commonly used for row crops.

No-till farming eliminates tillage operations entirely and leaves nearly all of the crop residue on the soil surface. Some farmers in the county are finding this practice to be a cornerstone of their conservation efforts. Other benefits of no-till farming include lower equipment costs, less soil compaction, time savings at planting time, conservation of soil moisture, and fuel savings.

The large amounts of residue left by no-till farming also shield the soil from sunshine, which slows



Figure 10.—Row crops, such as grain sorghum and soybeans, are grown primarily on alluvial soils, such as those in the Jamesfin-Moniteau association along the Osage River.

evaporation. This characteristic is an asset in the summer during droughty periods but tends to delay warming and drying of the soil in the spring. Therefore, no-till farming is best suited to deep or very deep, moderately well drained or well drained soils that are not frequently flooded, such as Gravois, Gunlock, Jemerson, Kliever, Menfro, and Wrengart soils.

Contour stripcropping involves maintaining contoured strips of permanent vegetation. The strips of grass or legumes are typically used for hay. The areas between the strips are cultivated, and row crops are planted on the contour. The grass or legume strips minimize erosion and help to filter the sediment from runoff that would otherwise leave the field.

Terraces reduce the length of slopes and thus reduce the runoff rate and the hazard of erosion. Broad-base terraces are most practical on uneroded upland soils that have smooth slopes of less than 8 percent. Construction of grassed backslope or narrow-base terraces reduces the steepness of the slope

because construction cuts are made from the downslope side. Construction of broad-base terraces actually increases the slope; as a result, additional erosion-control practices are crucial. On many soils, such as Cotton, Gunlock, Hartville, Maplewood, McGirk, and Sacville soils, topsoiling may be required in areas where terracing exposes the clayey subsoil. Cotton, Gravois, Gunlock, Maplewood, and Wrengart soils have similar intensive management needs because of a dense layer in the subsoil.

Vegetative buffer strips alongside drainageways and streams are effective in filtering sediment and pollutants from surface water before the flow becomes concentrated. These strips help to keep soil loss localized and reduce the damage and pollution associated with sedimentation. As a result, water quality is enhanced and protected.

Grade-stabilization structures are small water bodies that cover up gullied areas and prevent further uphill encroachment (fig. 11). These structures provide



Figure 11.—Grade-stabilization structures help to control erosion and provide a source of water for livestock.

a stable place into which tile terrace outlets or grassed waterways can empty runoff from terraced fields. The structures can be used for livestock water and fire protection. They also protect road ditches and water supplies by trapping sediment.

Streambank erosion is a challenging problem along most streams and rivers in Cole County (fig. 12). The smaller banks can be stabilized by installing revetments constructed from treetops. This process has proven to be effective in some cases, but it is very labor intensive. Riprap can be used with some success on the larger banks, but it is very expensive. Along the larger rivers, wingdams and other structures are needed to control the force of the stream current. These modifications are extremely expensive and ordinarily require broad public support and funding.

Soil Wetness

Wetness and/or flood control are management concerns in some areas of the county. Blake, Deible, Dockery, Freeburg, Hacreek, Leta, Moniteau, Racoon, Tanglenook, and Waldron soils are naturally so wet that planting or harvesting is delayed or crop

production is reduced in most years. Land grading or surface drainage may be needed on these soils.

In the past, drainage of wetland areas was unregulated and therefore occurred at the discretion of individual landowners. In recent years, however, legislation has been enacted in recognition of the importance of wetlands to the total environment. The effect of these laws is to protect most existing wetlands from further degradation and to encourage redevelopment of areas that were formerly wetlands. To ensure compliance with existing laws, the Natural Resources Conservation Service should be contacted before any area that might be considered a wetland is altered.

Flooding is a hazard in areas of Blake, Cedargap, Deible, Dockery, Freeburg, Hacreek, Haynie, Jamesfin (fig. 13), Jemerson, Leta, Moniteau, Racket, Racoon, Sarpy, Tanglenook, and Waldron soils.

On the flood plain along the Missouri River, destructive turbulence often occurs when floodwaters overtop existing levees. The concentrated power of the river scours out deep holes and deposits great quantities of sand over the top of the soil

downstream from the scouring. The holes remain as lakes that have redeeming value, but the sand can render the land it covers useless until it is incorporated or removed. Buildings that are not swept away by the current may be ruined by sediment damage.

Soil Fertility

Natural soil fertility is relatively low in most of the eroded and shallow soils in Cole County. All of the soils, however, need additional plant nutrients for maximum production. Except for soils on the bottom land along the Missouri River, most of the soils are naturally acidic in the upper part of the root zone and require applications of lime to raise the pH and calcium level sufficiently for optimum growth of legumes. On all of the soils, additions of lime and fertilizer should be based on the results of soil tests, on the needs of the crop, and on the production level desired. The Cooperative Extension Service can help

in determining these values. Soil samples can be organized using the soil survey to identify contrasting soil types. Excessive nutrient levels can adversely affect the quality of ground water and surface water. Professional expertise is needed to help formulate nutrient management plans that optimize crop growth while protecting water quality.

Soil Tilth

Soil tilth affects seedbed preparation, the germination of seeds, and the rate of water infiltration. Soils that have good tilth are granular and porous. Regular additions of organic material help to maintain good tilth.

Most of the cultivated soils in the county have a surface layer of silt loam that has a low or moderate content of organic matter. If these soils are frequently cultivated, soil structure becomes weak and intense rainfall can cause the formation of a crust on the surface. This crust is hard when dry, and it reduces the



Figure 12.—Streambank erosion is an important management concern in Cole County.



Figure 13.—Crops can be destroyed or seriously damaged in areas that are susceptible to flooding, such as this area of Jamesfin silt loam, 0 to 3 percent slopes, frequently flooded.

rate of water infiltration, increases the runoff rate, and inhibits seedling emergence. Returning crop residue to the soil or regularly adding other organic material improves fertility, minimizes crusting, and increases the rate of water infiltration.

The bearing weight of machinery as it travels over the soil surface tends to compact the soil if it is moist or wet. This compaction reduces the rate of water infiltration and makes the resulting seedbed less favorable for root penetration. Using machinery only when the soil moisture conditions are optimum can minimize surface compaction. Periodic deep tillage can improve existing compacted areas.

In the past, fall tillage was a common practice designed to provide tilth for spring planting. This cultivation of the more sloping soils in the uplands resulted in serious soil losses. Such losses can be catastrophic when intense spring rains follow partial thawing of the bare, frozen surface layer. Planting

winter cover crops and maintaining a cover of crop residue on the surface can reduce the hazard of erosion and improve tilth.

Pasture and Hayland

A combination of different kinds of grasses and legumes is necessary to obtain maximum forage production for the climate in Cole County. Cool temperatures in the spring and fall are favorable for the production of cool-season grasses. The hot summer months are more favorable for production of warm-season grasses. Both kinds of grasses are suitable for many of the soils in the survey area. Legumes are suitable for some of the soils in the county. A management system that includes cool-season grasses, warm-season grasses, and legumes takes advantage of the entire growing season for forage production.

Cool-Season Grasses

The cool-season grass most commonly grown in Cole County is tall fescue (fig. 14). Limited amounts of orchardgrass, timothy, smooth brome grass, reed canarygrass, and Kentucky bluegrass also are grown. All of these grasses are commonly grown on upland soils, except for reed canarygrass, which is planted primarily in the wetter areas on bottom land. These cool-season grasses provide top production only when properly managed. A system of rotation grazing helps to keep forage crops at an optimum height for the highest production. Supplemental fertilization and timely weed control also are essential for top production.

Cool-season grasses grow vigorously when temperatures are cool (between 50 and 85 degrees F). These grasses generally start growing in late March and can be grazed by late April. Timothy and

brome grass do not produce tillers unless a seedhead is allowed to develop. Therefore, overgrazing or haying too early in the growing season can reduce the total production of these forage crops. Orchardgrass will regrow vigorously with or without development of a seedhead, so the timing of grazing or haying is less critical for this plant than for timothy and brome grass. Bluegrass is generally less productive than the other cool-season grasses but can better withstand overgrazing and poor management. Fescue can also withstand abuse and severe site conditions, but endophyte-infested stands are widespread and produce less than optimum weight gains, especially during the summer. Reestablishing existing stands with endophyte-free seed is an option some managers are selecting. Careful grazing management and interseeding of legumes can minimize the effects and reduce the spread of the infestation. Poor palatability can also be a problem in fescue stands. Reed canarygrass is



Figure 14.—Fescue in an area of Wrengart silt loam, 9 to 14 percent slopes, bedrock substratum.

moderately palatable and is highly productive in areas that would be too wet for other grasses or for row crops.

Because of increasing temperatures and day length, the production of cool-season grasses decreases significantly by mid-June. As fall brings cooler temperatures and shorter days, growth increases accordingly. Production continues until the first killing frost occurs, usually in late October. One exception to this growth pattern is tall fescue, which continues growth until sometime in December.

Warm-Season Grasses

Warm-season grasses that are commonly grown in Cole County include big bluestem, indiangrass, switchgrass, and little bluestem. Gamma grass also is grown. This grass requires a high or very high available water capacity.

Warm-season grasses were native to small areas of the county before the arrival of the early pioneers. These grasses are adapted to the soils and climate of the county. Their suitability for the climate is vividly demonstrated during the hot summer months of June, July, and August. These grasses peak in production when the temperature reaches 90 degrees F. Growth slows when temperatures fall below 70 degrees F. Warm-season grasses need only 40 percent as much water as cool-season grasses to produce the same amount of forage.

Strict management techniques are necessary for optimum production and longevity of warm-season grasses. Rotational grazing patterns are needed so that these grasses can be utilized when they are growing vigorously. Rotation grazing systems also eliminate overgrazing during dormant periods. Minimum grazing height guidelines and prescribed burning plans should be followed. Supplemental fertilizer needs of warm-season grasses are small compared to those of cool-season grasses. Typically, nitrogen is the only supplement necessary for top production.

Legumes

Legumes are included in many forage systems in Cole County. They improve overall forage quality and quantity. When included with grasses in a seeding mixture, legumes stimulate growth of the grasses because of nitrogen fixation by bacteria on the roots of the legumes.

Pure legume stands provide sources of high-protein forage. Some legumes, such as alfalfa and ladino clover, can cause bloating if unrestricted grazing is allowed; therefore, most pure legume stands are used for hay. Alfalfa is the most common legume used for hay production (fig. 15). Other legumes, such as red

clover, birdsfoot trefoil, and ladino clover, are used in pasture mixes. Crown vetch is used to stabilize steep banks and critically eroding areas.

Proper use and management of legumes can involve selecting soils that are compatible with the growth characteristics of the various plants. Some legumes, such as alfalfa, require well drained or moderately well drained, very deep soils that have a high or very high available water capacity. Haynie, Jamesfin, Jemerson, Kliever, Menfro, and Wrengart soils have such characteristics. Some legumes, such as alsike clover, can tolerate the wetter soils.

Legumes do not need supplemental nitrogen because of the natural fixation that occurs in the root system. When used for hay, legumes often require large amounts of phosphorus and potassium. Heavy applications of limestone are also needed for optimum production on most soils.

Balanced Management

The production of cool-season grasses, warm-season grasses, and legumes peaks at different periods of the growing season. Management plans that include all three kinds of forage make optimum use of the entire season. Such a system, along with rotation grazing or haying of these different crops, can increase production and profit and also protect the topsoil with permanent cover.

Certain management practices are needed on all soils in the survey area. Timely mowing or chemical weed control reduces competition from undesirable plants and encourages uniform grazing. Overgrazing reduces production of grasses and legumes and increases weed growth. Grazing when the soil is too wet causes surface compaction, poor tilth, and excessive runoff. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during wet periods help to keep the pasture in good condition.

An important element of any efficient grazing system is easy access to clean water. This access can be achieved with ponds that can be constructed with freezeproof livestock watering devices fed by buried pipe through the dam. Such arrangements provide abundant clean water throughout the year but allow the pond dam and pool area to be fenced in order to protect the water supply. Streams can be used for watering if access is localized so that the stream is protected from pollution. Filter strips along streams help to filter water entering the stream and help to stabilize channel areas. They also provide important habitat for wildlife.

Numerous small springs were historically viewed as bothersome seepy areas. With minimal development,



Figure 15.—Alfalfa is grown in some areas of Haynie silt loam, 0 to 2 percent slopes, occasionally flooded, on the fertile flood plain along the Missouri River.

these areas can be easily developed as water sources for livestock (fig. 16). Buried drainage pipes remove water from the wet areas and feed livestock watering tanks, which are often constructed from used heavy equipment tires. Overflow from each facility can be used to feed similar facilities farther downslope, resulting in an extensive system that helps to evenly distribute the grazing of livestock.

Specialty Crops

Vineyards, orchards, and Christmas tree farms produce specialty crops on a limited basis in Cole County. Small patches of cane sorghum, pumpkins, watermelons, and tobacco also are grown. These crops require special equipment, management, and propagation techniques. This soil survey can help the

user identify areas that are suitable for these and other crops if specific soil-related requirements are known.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing



Figure 16.—A recycled tire used in a spring development provides fresh water for livestock. The development also helps to prevent streambank erosion and improves water quality by restricting access to streams.

food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 48,625 acres in the survey area, or 19

percent of the total acreage, meets the soil requirements for prime farmland. Some of this prime farmland is used for crops, mainly corn and soybeans.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to industrial and urban uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in table 5. This list does not constitute a recommendation for a particular land use. On some soils included in the list, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. Some of the soil qualities and properties that affect use and management are described under the heading "Detailed Soil Map Units."

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 6 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a

substitute for interpretations designed to show suitability and limitations of groups of soils for forestland or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA, 1961). Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, 2*e*. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w*, *s*, or *c* because the soils in class 5 are subject to little or no

erosion. They have other limitations that restrict their use to pasture, forestland, wildlife habitat, or recreation.

The capability classification of map units in this survey area is given in table 6.

Pasture and Hayland Suitability Groups

The soils in Cole County are assigned to a pasture and hayland group according to their suitability for pasture management.

Many different pasture and hayland suitability groups are in the survey area. Over time, the combination of plants best suited to a particular soil and climate has or will become dominant. Plant communities are not static but vary slightly from year to year and from place to place.

The relationship between soils and vegetation was ascertained during this survey. Thus, pasture and hayland suitability groups generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of each plant species. Soil reaction, salt content, and a seasonal high water table also are important. The "Field Office Technical Guide," which is available at local offices of the Natural Resources Conservation Service, can provide specific information about pasture and hayland suitability groups.

Table 7 shows, for each soil, the assigned pasture and hayland suitability group. Specific concerns and recommendations for pasture and hayland management for each group are described in the following paragraphs.

Group WLB—Wet Loamy Bottom. A seasonal high water table and flooding are the main management concerns. Plants should be selected accordingly. A seedbed can be easily prepared. A drainage system can improve the growth of deep-rooted species. The hazard of flooding should be considered when a grazing system is designed.

Group WCB—Wet Clayey Bottom. Wetness and flooding are the main management concerns. The soils in this group are poorly suited to hay. The hazard of flooding should be considered when a grazing system is designed. Maintaining stands of desirable species is difficult in depressional areas. A drainage system can improve the growth of deep-rooted species.

Group WCU—Wet Clayey Upland. Wetness is the main management concern. Maintaining stands of desirable species is difficult in depressional areas. A

drainage system can improve the growth of deep-rooted species.

Group WLO—Wet Loamy Overflow. Wetness and flooding are the main management concerns. A seedbed can be easily prepared. A drainage system can improve the growth of deep-rooted species. The hazard of flooding should be considered when a grazing system is designed.

Group LyO—Loamy Overflow. Flooding is the main management concern. The hazard of flooding should be considered when a grazing system is designed.

Group LyU—Loamy Upland. No serious concerns affect pasture and hayland management. Erosion is a hazard in newly seeded areas. Timely seedbed preparation is needed to ensure a good ground cover.

Group CyU—Clayey Upland. Pasture and hay crops are effective in controlling erosion. Erosion during seedbed preparation is the main concern. Timely tillage and a quickly established ground cover reduce the hazard of erosion. The forage species that are tolerant of wetness grow best. The production of deep-rooted legumes is limited because of wetness and a restricted rooting depth.

Group GrU—Gravelly Upland. The soils in this group generally are not suited to cultivated crops. Droughtiness and erosion are the main management concerns. Seedbeds should be prepared on the contour. Timely seedbed preparation helps to ensure rapid plant growth and a protective ground cover.

Group MDU—Moderately Deep Upland. Shallow-rooted species that are tolerant of droughtiness should be selected for planting. Erosion is a serious hazard in newly seeded areas. Timely tillage and a quickly established ground cover reduce the hazard of erosion.

Group WtP—Wet Pan. The species that are tolerant of wetness grow best. A dense layer in the subsoil can restrict the rooting depth and result in insufficient soil moisture in dry years. Erosion during seedbed preparation is the main concern. Timely tillage and a quickly established ground cover reduce the hazard of erosion.

Group LyP—Loamy Pan. A few small areas of this group are used for cultivated crops, and some areas are wooded. A dense layer in the subsoil can restrict the rooting depth and result in insufficient soil moisture in dry years. Erosion during seedbed preparation is a hazard. Seedbeds should be prepared on the contour. Timely tillage and a quickly established ground cover reduce the hazard of erosion.

Group GrO—Gravelly Overflow. Most areas of

this group have been cleared of trees and are used for pasture and hay. Proper stocking rates, pasture rotation, timely deferment of grazing, and restricted use during periods of flooding help to keep the pasture in good condition.

Group GrP—Gravelly Pan. If the soils in this group are used for improved pasture, chert on the surface hinders tillage. Because of seasonal droughtiness, timely planting is needed to ensure an adequate stand. Erosion is a hazard in newly seeded areas. Timely seedbed preparation helps to ensure a protective ground cover.

Group ShU—Shallow Upland. Most areas of this group are used for native pasture and are best suited to shallow-rooted species. In some areas tillage is nearly impossible. Broadcast seeding may be necessary. The slope and rock outcrop can hinder mowing in places.

Group SyO—Sandy Overflow. The soils in this group tend to be droughty because they are excessively drained, but they are also subject to flooding. Plants should be selected accordingly. A seedbed can be easily prepared. The flooding and the droughtiness should be considered when a grazing system is designed. Because the soils are subject to flooding and droughtiness at different times, a flexible grazing system is needed.

Group GNS—Generally Not Suited. The soils in this group generally are not suited to pasture and hay. The suitability for forage species and the use of equipment are limited by the slope, a high content of rock fragments, or both.

Forest Productivity and Management

Douglas C. Wallace, forester, Natural Resources Conservation Service, helped prepare this section.

Approximately 77,448 acres in Cole County, or about 30 percent of the survey area, is forested, according to 1986 woodland survey estimates by the Missouri Department of Conservation. The forested uplands in the county are dominated by oak-hickory and eastern redcedar communities. White oak, red oak, bitternut hickory, and black oak occur on the better sites. Post oak, blackjack oak, eastern redcedar, and hickories are common in areas of the shallower soils and in droughty areas. Areas that are very shallow or shallow to bedrock or that include rock outcrop are dominated by eastern redcedar, blackjack oak, and prairie grasses (Hansen, 1991). These areas

are commonly referred to as “glades” or “cedar breaks.” Common tree species on flood plains include black walnut, American elm, sycamore, bur oak, hackberry, green ash, and black willow.

Tree species and growth rates in the county vary, depending on *site characteristics, soil properties, and management activities*.

Site characteristics that affect tree growth include aspect, slope, and topographic position. These site characteristics influence the amount of available sunlight, air drainage, soil temperature, soil moisture, and relative humidity. Typically, north and east aspects and the lower slope positions, which are cooler and have better moisture conditions than other sites, are the best upland sites for tree growth. The most productive soils on bottom land are generally areas of deep, moderately well drained, occasionally flooded soils.

Soil properties that affect the growth of trees include wetness, slope, clay content, and depth to bedrock. The soil also serves as a reservoir for moisture, provides an anchor for roots, and supplies essential plant nutrients.

Soil wetness is a result of a high water table, flooding, or ponding. It causes seedling mortality, limits the use of equipment, and increases the windthrow hazard by restricting the rooting depth of some trees. Somewhat poorly drained and poorly drained upland soils that have a perched water table include Cotton, Freeburg, Hartville, Maplewood, McGirk, and Sacville soils. Ruts form easily if wheeled skidders are used when these soils are wet. Deep ruts tend to restrict lateral drainage, damage tree roots, and alter soil structure. Flooding is a problem in areas on bottom land. Soils on bottom land include Blake, Cedargap, Deible, Dockery, Freeburg, Hacreek, Haynie, Jamesfin, Jemerson, Leta, Moniteau, Racket, Racoon, Sarpy, Tanglenook, and Waldron soils. In areas of these soils, equipment should be used only during dry periods or when the ground is frozen.

Slope can limit the use of forestry equipment. In areas that have slopes of 15 percent or more, the use of equipment is restricted in logging areas, on skid roads, in yarding areas, and on logging roads. Erosion is a hazard in these areas. Many areas of Gatewood, Gravois, Kliever, Menfro, Moko, Rueter, Ocie, Niangua, Bardley, and Wrengart soils are highly susceptible to erosion because of the slope. Special erosion-control measures, such as water bars or dips, may be needed. Also, proper design of logging roads and trails can minimize the steepness and length of slopes and the concentration of water. In moderately steep to very

steep areas, the safety hazard involved in the use of equipment is an important consideration. In these areas, the equipment should be operated on the contour wherever possible. In some areas it may be necessary to move logs uphill to skid trails and yarding areas.

The content of clay in the topsoil or subsoil can affect seedling mortality and limit the use of equipment. Traction is reduced in areas of clayey soils. These soils also are susceptible to compaction during wet periods, and the seedling mortality rate may be high. Ruts form easily on unsurfaced roads and skid trails. These roads and trails may be impassable during rainy periods. Soils that have a high content of clay in the subsoil include Arkana, Bardley, Caneyville, Cotton, Deible, Eldon, Gatewood, Gunlock, Hartville, Leta, Maplewood, McGirk, Niangua, Ocie, Sacville, Tanglenook, and Waldron soils. On these soils, activities should be restricted to dry or frozen periods or to surfaced areas. Seedling establishment can be improved with mechanical or chemical weed control, mulching, or supplemental watering.

Soil depth is generally one of the most significant soil properties affecting woodland productivity. Soil horizons that are favorable for root development allow a tree to anchor its roots and provide volume for available water and nutrients. The growth of trees in areas of the very shallow or shallow Moko soils is affected by the restricted rooting depth and rooting volume. Trees in these areas are susceptible to water stress during dry years or dry seasons and are subject to windthrow during periods of high winds. The use of equipment and the construction of logging roads are restricted in areas of shallow soils and rock outcrop. Careful planning is needed in these areas. Tree growth is less restricted in areas of moderately deep soils, but production in these areas can still be adversely affected. Moderately deep soils in Cole County include Arkana, Bardley, Caneyville, and Gatewood soils. In some soils, the effective rooting depth is restricted by a high content of clay in the subsoil. Other soils, such as Gunlock, Gravois, Maplewood, and Wrengart soils, have layers in the subsoil that are too dense for optimum root penetration.

Management activities can influence woodland productivity and should be aimed at eliminating factors causing tree stress. Generally, these activities include controlling erosion; thinning overstocked young stands; harvesting old, mature trees; eliminating destructive fire and grazing; and planting trees in areas where natural regeneration is insufficient or undesirable.

Concentrating management activities on sites that have productive soils and in areas that support high-

value timber species can help to maximize investment returns. The more productive soils in Cole County include Freeburg, Hartville, Kliever, Menfro, and Wrengart soils on the uplands and Blake, Dockery, Freeburg, Hacreek, Haynie, Jamesfin, Jemerson, Moniteau, Racket, Racoon, and Sarpy soils on bottom land. Commercially valuable timber species include white oak, red oak, black walnut, native pecan, white ash, and black oak.

Fire and grazing have very negative impacts on forest growth and quality. About 30 percent of the woodland is still subject to moderate or heavy grazing. Grazing destroys the leaf layer on the surface, compacts the soil, and destroys or damages tree seedlings. Wildfire damage in forested areas is a major concern throughout the Ozarks. Woodland sites that are protected from livestock and fire have the highest potential for optimum timber production.

The tables described in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forest management.

Forest Productivity

In table 8, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in 50 years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or through the Agency's Website.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forest Management

In tables 9a and 9b, interpretive ratings are given for various aspects of forest management. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified aspect of forest management. *Not limited* indicates that the soil has features that are very favorable for the specified aspect of management. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified aspect of management. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified aspect of management. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified aspect of management. The limitations can be overcome, but overcoming them generally requires special design, special planning, soil reclamation, specialized equipment, or other procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified aspect of management. The limitations generally cannot be overcome without major soil reclamation, special design, specialized equipment, or other expensive procedures. Poor performance, unsafe conditions, or high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as

three soil features may be listed for each component. The overall limitation class for the component is based on the most severe limitation.

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management factors. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or through the Agency's Website.

Ratings in the column *hand planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. Ratings indicate the expected difficulty of hand planting, which includes the proper placement of root systems of tree seedlings to a depth of up to 12 inches, using standard hand planting tools. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. Ratings indicate the expected difficulty in using a mechanical planter, which includes proper placement of root systems of tree seedlings to a depth of up to 12 inches. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, depth to a water table, and ponding. Ratings indicate the suitability for operating harvesting equipment for off-road transport or harvest of logs and/or wood products by ground-based wheeled or tracked equipment.

Ratings in the column *mechanical site preparation (surface)* are based on slope, depth to a restrictive layer, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The part of the soil from the surface to a depth of about 12 inches is considered in the ratings. Ratings indicate the suitability of using surface-altering soil tillage equipment to prepare the site for planting or seeding.

Ratings in the column *roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads on which trucks transport logs and other wood products from the site.

In table 9b, ratings in the column *erosion on roads*

and trails are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails.

Ratings in the column *off-road or off-trail erosion* are based on slope and on the soil erodibility factor K. The soil loss is caused by sheet or rill erosion in off-road or off-trail areas where 50 to 75 percent of the surface has been exposed by logging, grazing, mining, or other kinds of disturbance.

Ratings in the column *soil rutting* are based on depth to a water table, rock fragments on or below the surface, surface texture, depth to a restrictive layer, and slope. Ruts form as a result of the operation of forest equipment. Ratings indicate limitations affecting the hazard or risk of ruts in the uppermost layers of the soil. Soil displacement and puddling (soil deformation and compaction) may occur simultaneously with the formation of ruts.

Ratings in the column *log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, surface texture, depth to a water table, ponding, flooding, and the hazard of soil slippage. Ratings indicate the suitability of the soil at the forest site to serve as a log landing and to allow the efficient and effective use of equipment for the temporary storage and handling of logs.

Ratings in the column *seedling survival* are based on flooding, ponding, depth to a water table, content of lime, reaction, salinity, available water capacity, soil moisture regime, soil temperature regime, aspect, and slope. Ratings indicate the impact of soil, physiographic, and climatic conditions on the survivability of newly established tree seedlings.

Windbreaks and Environmental Plantings

Douglas C. Wallace, forester, Natural Resources Conservation Service, helped prepare this section.

Living plants play an important role in supporting our life and improving its condition. If properly used and maintained, plants can help provide positive solutions to many problems in our contemporary environment. In Cole County, windbreaks and environmental plantings can be utilized throughout the landscape to meet a variety of engineering, climatological, and esthetic needs.

Windbreaks can be grown successfully in many areas of Cole County. Several specific aspects of management should be considered when farmstead and field windbreaks are planned. These include design and layout; species selection; site preparation; seedling handling; weed management; supplemental

watering; and protection from diseases, insects, and livestock.

Farmstead windbreaks make the farmstead area a more comfortable place, reduce energy costs, increase garden and fruit tree yields, enhance wildlife populations, buffer noises, and raise property values (Scholten, 1988). Feedlot windbreaks can be used to protect livestock from wind and snow. Windbreaks significantly reduce calf losses, make feeding operations easier, and enable livestock to maintain better weight with less feed.

Farmstead and feedlot windbreaks are generally three or more rows wide, and at least two of the rows consist of a conifer species. The windbreaks should be established on the windward side of the area to be protected and as perpendicular as possible to the prevailing winds (Brandle and others, 1988). Well designed farmstead and feedlot windbreaks are needed throughout Cole County, especially in the cleared upland areas of the Wrengart-Gatewood and Maplewood-Arkana soil associations, which are described under the heading "General Soil Map Units."

Environmental plantings can be used for beautification, visual screens, and control of acoustical, pollution, and climatological problems around buildings and other living spaces. Care should be given to selecting plants that exhibit proper height, shape, form, color, and texture and that are compatible with the surrounding area, structures, and desired use (Robinette, 1972). Establishing trees and shrubs is relatively easy in most areas of Cole County, but adequate site preparation prior to planting and control of competition from weeds after planting are necessary.

In areas of the nearly level Haynie-Blake-Sarpy and Jamesfin-Moniteau associations on bottom land, special uses of planted linear woody buffers, called waterbreaks, are needed. Waterbreaks are intended to moderate floodwater problems associated with soils on flood plains. During periods of flooding, properly designed waterbreaks trap debris, minimize sand deposition and scouring, protect levee systems, and help to prevent damage to roads and ditches. A typical waterbreak system includes primary waterbreaks, 50 to 300 feet wide, that parallel stream courses and secondary or interior waterbreaks, 25 to 100 feet wide, that are perpendicular to the anticipated flow of floodwaters along field borders or every one-half mile (Wallace and others, 2000).

Table 10 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in the table are based on measurements and observation of established plantings that have been given adequate care. They

can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or of the Cooperative Extension Service or from a commercial nursery.

Recreation

Shannon Zezula, area wildlife services biologist, Missouri Department of Conservation, helped prepare this section.

Cole County affords abundant opportunities for people to interact with a rich diversity of plant and animal communities. The Missouri River forms the northern boundary of Cole County, and the Osage River forms the eastern boundary. The Moreau River also flows through the county. All three of these rivers provide a multitude of recreational opportunities (fig. 17). Fishing and boating are popular water activities in the county. The Missouri Department of Conservation has developed several boat accesses.

Along with river fishing, Cole County offers still-water fishing opportunities. Binder Community Lake (150 acres), west of Jefferson City, has a boat ramp, concession stand, boat rentals, and picnic areas. These facilities are accessible to persons with disabilities. The lake also has fishing jetties for shore fishing (Missouri Department of Conservation, 1997).

The Missouri Department of Conservation manages several lakes in Cole County that are a part of the Community Assistance Program (CAP). This program provides fisheries management to local communities for developing and upgrading public use sites. In return, local communities maintain the area and its facilities and allow public access to their lakes. Jefferson City has three CAP sites. The Cole County Jaycee Park Lake (7 acres), Hough Park Lake (7 acres), and McKay Park Lake (6 acres) have picnic facilities that are accessible to persons with disabilities (Missouri Department of Conservation, 1997).

The Missouri Department of Conservation manages several properties in Cole County that offer recreational opportunities. The largest conservation area in Cole County is Marion Bottoms (2,999 acres)



Figure 17.—Long eddies of the Moreau River are habitat for an assortment of game fish.

along the Missouri River. The Smoky Waters Conservation Area (967 acres) is also along the Missouri River. Waterfowl, deer, and songbirds are common in both areas. Game species can be harvested as allowed by the Wildlife Code of Missouri (Missouri Department of Conservation, 1997).

Bobwhite quail, deer, and turkey can be hunted, as allowed by the Wildlife Code of Missouri, at Scrivner Road Conservation Area (919 acres) and Roger V. and Viola Wachal Smith Conservation Area (517 acres). Scrivner Road Conservation Area has a shooting range, a lake, and access to South Moreau Creek. Some of these facilities are also accessible to persons with disabilities (Missouri Department of Conservation, 1997).

The Runge Nature Center features five hiking trails and also has numerous exhibits and displays. A 3,400-gallon aquarium, an indoor wildlife viewing area, nature programs, and a library also are available at the center (Missouri Department of Conservation, 1997).

The soils of the survey area are rated in table 11 according to limitations that affect their suitability for recreational uses. Soils are rated for camp areas, picnic areas, playgrounds, and paths and trails.

The ratings in the table are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect recreational site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or

installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

The information in table 11 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of

plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, a water table, ponding, flooding, slope, and texture of the surface layer. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to frequent flooding during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Wildlife Habitat

Shannon Zezula, area wildlife services biologist, Missouri Department of Conservation, helped prepare this section.

Cole County is predominantly in the Ozark Border natural division of Missouri (Thom and Wilson, 1983; Yatskievych, 1999). Before it was settled by Europeans, the area was a mixture of forestland,

glades, savannas, prairies, and wetlands. In 1997, about 44 percent of Cole County supported a grassland cover type. About 32 percent was woodland, and 8 percent was cropland (USDA, 1997). These vegetative cover types influence the wildlife populations in the county.

About 346 fish and wildlife species are known to occur in Cole County. These include 91 species of fish, 20 species of amphibians, 30 species of reptiles, 180 species of birds, and 25 species of mammals.

Furbearers are common in Cole County. They include bobcat, raccoon, muskrat, opossum, coyote, beaver, and mink. River otter are repopulating the watercourses as a result of releases and management since the 1980s.

The federally endangered pallid sturgeon and gray bat have been observed in the county. Species on Missouri's list of rare and endangered species that are known to occur in Cole County include bald eagle, barn owl, and northern harrier.

Soil types generally dictate land use and therefore influence the value of vegetation and cover for wildlife. The diversity and abundance of wildlife in Cole County are further dependent on the type and diversity of vegetation and on how the different types of vegetative cover are interspersed. Most of the habitats in Cole County occur as a mosaic.

The place where two habitat types meet is called "edge." Developing edge habitat for wildlife is an important management opportunity in all areas of the county. Creating a better transition between different cover types benefits most wildlife more than a clear, defined break. For example, in a progression from a timbered area to grassland, good habitat would consist of tall trees in the timber, a transition to thick shrubby growth at the border, and finally a "feathering" out into the grassland. The thick shrubby edge area provides the habitat elements that most wildlife use and benefit from.

Wildlife managers try to create an edge with different vegetative heights and types. The goal is to create a transition zone that is rich in plant diversity. The quality of most of the edge habitat in Cole County is poor, mainly because the vegetation is currently a single species of grass or a single row crop or because the edge is an abrupt change between areas of different types of vegetation, without a transition zone. The easiest way to improve poor edge habitat is to thin the trees along the transition zone. Such thinning allows more sunlight to reach the ground, which results in shrubby growth. Shrubs and other plants beneficial to wildlife can also be planted along the edge to create this transition zone.

Timbered areas of Cole County offer excellent

opportunities for wildlife habitat management. Examples of woodland wildlife include white-tailed deer, eastern wild turkey, and squirrels. Other species of woodland wildlife are great horned owl, spotted salamander, northern cardinal, blue jay, and broad-winged hawk.

More than 50 percent of the vegetative cover in the Rueter-Niangua-Gravois association is woodland cover. Grass is the second most prevalent cover type in areas of this association, which is described under the heading "General Soil Map Units." In wooded areas of this association, the Gravois soils support the best overall oak-hickory forests.

Timber management is an important tool for enhancing wildlife habitat. Consultation with a professional forester is recommended. In the uplands, Freeburg, Gravois, Gunlock, Hartville, Kliever, Menfro, and Wrengart soils are the most productive for timber. The most productive soils on bottom land include Blake, Deible, Dockery, Freeburg, Hacreek, Haynie, Jamesfin, Jemerson, Leta, Moniteau, Racket, Racoon, Tanglenook, and Waldron soils. Many of these sites have been cleared, however, and are presently used for other purposes. If tree planting is planned, these soils offer some of the best return on the dollar for wood fiber production. When grassland and cropland are abandoned in areas of these soils, woody species begin to invade. Proper management of these invaders enhances both wildlife habitat and future timber value, depending on the management objectives.

Bardley, Gatewood, Moko, Niangua, Ocie, and Rueter soils are still predominantly wooded. For proper management of woodland, a diverse mix of species is preferred. Among the oaks, a good mixture of red oak and white oak is important to wildlife because the acorns of these species mature at different times. Red oak acorns take 2 years to mature, whereas white oaks grow acorns and drop them in the same year. When white oak acorns are not available, the red oak acorn crop from the preceding year is available for wildlife. This cycle helps to ensure a consistent acorn crop. On alluvial soils, walnut species offer good management potential for timber and wildlife habitat. Important woodland wildlife management priorities include minimizing grazing in areas of woodland, maximizing the diversity of tree species, preserving old second-growth tree communities, and developing edge habitat.

Prior to permanent settlement, much of Cole County was a grass-brush-timber mixture referred to as savannas (Beilmann and Brenner, 1951). The soils that may be managed or restored as savannas include Arkana, Bardley, Gatewood, Niangua, Ocie, Rueter, and Moko soils. Savanna management should include

prescribed burning, limited livestock access, and removal of overstocked woody species.

Sites dominated by Moko soils typically have numerous rock outcroppings and are referred to as glades. Small areas of these glades currently support xeric prairie flora that is not characteristic of other habitats in the county. Wildlife species that frequent the glades and savannas are similar to those in areas of edge habitat. Management practices that help to restore the grassland component in areas of Moko soils generally include the use of prescribed fire and a reduction in the amount of tree cover. These sites also offer the potential to grow marketable eastern redcedar. Key management considerations are similar to those for savannas. They include prescribed burning, limited livestock access, and removal of invasive woody cover.

Grassland cover makes up the most prevalent habitat type in Cole County. Grassland wildlife species in the county include western chorus frog, dickcissel, red-tailed hawk, American kestrel, bobwhite quail, and eastern wild turkey. Arkana and Maplewood soils originally supported treeless prairie cover. These prairies occurred on broad upland summits. Areas of native prairie in Cole County have been described as originally occurring predominantly on the southwestern side of the county (Schroeder, 1982).

A very important consideration affecting habitat for openland wildlife is the type of grass in which pastures and hayfields are established. Because of its vigor under almost any grazing situation, fescue is the most common forage species in the county. Unfortunately, fescue generally provides poor wildlife habitat. Intensive management of grazing systems is needed if habitat improvement is an objective in these areas. Such management includes introducing legumes, using different species of grass, implementing rotation grazing systems, and applying prescribed burning practices.

Where remnants of native warm-season grasses and native forbs exist, restoration of these natural communities is preferable to reintroduction. Restoration is generally easier to accomplish and less expensive than reintroduction. Restoration may include the use of prescribed fire, removal of invasive trees, edge development and management, and implementation of rotation grazing systems.

The Haynie-Blake-Sarpy association, which is on the flood plain along the Missouri River, and the Jamesfin-Moniteau association, which is on the smaller flood plains, provide additional habitat for openland wildlife. These associations are heavily cropped. Many soil conservation measures can enhance the habitat in areas of cropland. These

measures include leaving some crop standing for “food plots” and using a system of conservation tillage. Edge development in areas where cropland meets woodland and grassland can also provide habitat for a variety of wildlife.

These associations also include areas of riparian habitat, or wooded areas along the streambanks. Riparian areas offer timber management opportunities and provide critical habitat for belted kingfishers, great horned owls, yellow warbler, wood ducks, and many other terrestrial wildlife species. Riparian areas are also crucial as a contributing habitat for the fishery resource. Bald eagles and osprey frequent areas of these associations because of their proximity to the large rivers.

Most of the remaining wetlands in Cole County are in areas of the Haynie-Blake-Sarpy and Jamesfin-Moniteau associations, but small wetlands also are in areas of bottom land in other associations. These wetlands are in old oxbows and river channels. Wetlands and marshes are an important cover type for many species of wildlife, including bullfrogs, red-winged blackbird, green-winged teal, blue-winged teal, beaver, deer, and mink. Tanglenook soils are likely sites for the occurrence or development of marshy, herbaceous wetlands. Deible, Moniteau, and Racoon soils were originally wooded and have the potential for bottom-land hardwood habitat.

Cole County has a significant amount of flowing water, including the Missouri and Osage Rivers and many smaller streams. This wide diversity of hundreds of miles of permanent flowing streams provides habitat for approximately 91 species of fish and approximately 27 species of freshwater mussels that are known to, or are likely to, occur in such waters (Oesch, 1995). Channel catfish, carp, drum, largemouth bass, bluegill, and other sunfish are quite common and provide sport for anglers. Giggling of nongame fish, floating, power boating, and wading also are important water-related recreational activities on these rivers and streams. Important management considerations for stream habitat include following proper gravel removal techniques, maintaining and enhancing riparian corridors, and minimizing streambank erosion and sedimentation by restricting livestock access.

In addition to flowing waters, Cole County has numerous small lakes and hundreds of ponds, most of which are stocked with largemouth bass, channel catfish, and bluegill.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water.

Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In tables 12a and 12b, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. *Not limited* indicates that the soil has features that are very favorable for the specified use. Habitat is easily established, improved, or maintained. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Habitat can be established, improved, or maintained. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. Habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. Habitat is difficult to create, improve, or maintain in most places. Management is difficult and must be very intensive. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. Habitat is usually impractical or impossible to create, improve, or maintain. Management would be very difficult, and unsatisfactory results can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as

three soil features may be listed for each component. The overall limitation class for the component is based on the most severe limitation.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Selection should be made from a list of locally adapted species.

Domestic grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Selection should be made from a list of locally adapted species.

Upland wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Selection should be made from a list of locally adapted species.

Upland shrubs and vines are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs and vines are depth of the root zone, available water capacity, salinity, and soil moisture. Selection should be made from a list of locally adapted species.

Upland deciduous trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees are depth of the root zone, available water capacity, and wetness. Selection should be made from a list of locally adapted species.

Upland mixed deciduous-conifer trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, browse, seeds, and foliage. Soil properties and features that affect the growth of these trees are depth of the root zone, available water capacity, and wetness. Selection should be made from a list of locally adapted species.

Riparian herbaceous plants are annual and perennial native or naturally established grasses and forbs that grow on moist or wet sites. Soil properties and features affecting riparian herbaceous plants are

surface texture, wetness, flooding, ponding, and surface stones. Selection should be made from a list of locally adapted species.

Riparian shrubs, vines, and trees are bushy woody plants and trees that grow on moist or wet sites. Soil properties and features affecting these plants are surface texture, wetness, flooding, ponding, and surface stones. Selection should be made from a list of locally adapted species.

Freshwater wetland plants are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur adjacent to springs, seeps, depressions, areas of bottom land, marshes, or backwater areas on flood plains. Most areas are ponded for some period of time during the year. Soil properties and features affecting these plants are surface texture, wetness, ponding, and soil reaction. Selection should be made from a list of locally adapted species.

Irrigated freshwater wetland plants are grasses, forbs, and shrubs that are adapted to wet soil conditions. The soils suitable for this habitat generally occur in areas of cropland, in previously cropped areas, and in marginal areas associated with cropland and wetlands. These areas may be ponded for some period of time during the year. They are generally suitable for restoring wetland features temporarily or permanently. Soil properties and features affecting these plants are surface texture, permeability, wetness, ponding, and soil reaction. Selection should be made from a list of locally adapted species.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, water management, and waste management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils

or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; evaluate sites for agricultural waste management; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 13 shows

the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

Dwellings are single-family houses of three stories or less. For dwellings without basements, the

foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential),

the potential for frost action, a water table, and ponding.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

The soils of the survey area are rated in table 14 according to limitations that affect their suitability for sanitary facilities. Soils are rated for septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect sanitary facilities. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are

shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may be contaminated. Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, hillside seepage, and contamination of ground water, can affect public health.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the

suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench

landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill*, solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials and Excavating

The soils of the survey area are rated in table 15 as a source of roadfill, sand, gravel, or topsoil. Normal compaction, minor processing, and other standard construction practices are assumed. The soils are also rated according to limitations that affect their suitability for shallow excavations. The ratings in the table are both verbal and numerical.

For sand and gravel, the soils are rated as a *probable*, *possible*, or *improbable* source. A rating of *probable* indicates that the source material is likely to be in or below the soil. A rating of *possible* indicates that the source material may be in or below the soil and that further investigation is warranted. A rating of *improbable* indicates that the source material is unlikely to be in or below the soil. The numerical ratings in these columns indicate the degree of probability. A numerical rating of 1.00 indicates that the soil is an improbable source. A numerical rating of less than 1.00 indicates the degree to which the soil is a possible or probable source of sand or gravel.

Other rating class terms used in this table indicate the extent to which the soils are limited by soil features that affect their use as a source for roadfill or topsoil or their suitability for shallow excavations. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings for roadfill, topsoil, and shallow excavations indicate the severity of individual

limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a

water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In the table, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the lowest layer of the soil contains sand or gravel, the soil is rated as a probable source regardless of the thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Water Management

Table 16 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas, drainage, irrigation, terraces and diversions, and grassed waterways.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low

maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Slope can affect the storage capacity of the reservoir area.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, permeability, depth to a water table, ponding, slope, and flooding. Excavating and grading and the

stability of ditchbanks are affected by depth to bedrock or a cemented pan, large stones, slope, and the likelihood that cutbanks will cave. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur. The availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to a water table, ponding, flooding, available water capacity, intake rate, permeability, erodibility, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the depth of the root zone, reaction, and the amount of salts, sodium, sulfur, lime, or gypsum.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, a water table, ponding, large stones, and depth to bedrock affect the construction of terraces and diversions. A restricted rooting depth, erodibility, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, a water table, slope, and depth to bedrock affect the construction of grassed waterways. Erodibility, soil moisture regime, available water capacity, restricted rooting depth, restricted permeability, and toxic substances, such as salts and sodium, affect the growth and maintenance of the grass after construction.

Waste Management

Soil properties are important considerations in areas where soils are used as sites for the treatment and disposal of organic waste and wastewater. Selection of soils with properties that favor waste management can help to prevent environmental damage.

Table 17 shows the degree and kind of soil limitations affecting the treatment of agricultural waste, including municipal and food-processing wastewater and effluent from lagoons or storage ponds. Municipal wastewater is the waste stream from a municipality. It contains domestic waste and may contain industrial waste. It may have received primary or secondary treatment. It is rarely untreated sewage. Food-processing wastewater results from the preparation of

fruits, vegetables, milk, cheese, and meats for public consumption. In places it is high in content of sodium and chloride. In the context of this table, the effluent in lagoons and storage ponds is from facilities used to treat or store food-processing wastewater or domestic or animal waste. Domestic and food-processing wastewater is very dilute, and the effluent from the facilities that treat or store it commonly is very low in content of carbonaceous and nitrogenous material; the content of nitrogen commonly ranges from 10 to 30 mg/l. The wastewater from animal waste treatment lagoons or storage ponds, however, has much higher concentrations of these materials, mainly because the manure has not been diluted as much as the domestic waste. The content of nitrogen in this wastewater generally ranges from 50 to 2,000 mg/l. When wastewater is applied, checks should be made to ensure that nitrogen, heavy metals, and salts are not added in excessive amounts.

The ratings in the table are for waste management systems that not only dispose of and treat organic waste or wastewater but also are beneficial to crops (application of manure and food-processing waste, application of sewage sludge, and disposal of wastewater through irrigation) and for waste management systems that are designed only for the purpose of wastewater disposal and treatment (slow rate treatment of wastewater and rapid infiltration of wastewater).

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Moderately limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Limited* indicates that the soil has one or more features that are significant limitations for the specified use. The limitations can be overcome, but overcoming them generally requires special design, soil reclamation, or installation procedures that may result in additional expense. Fair performance and moderate or high maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be

overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The numerical ratings are shown as decimal fractions ranging from 0.00 to 1.00. Limitation classes are assigned as follows:

Not limited	0.00
Slightly limited	0.01 to 0.30
Moderately limited	0.31 to 0.60
Limited	0.61 to 0.99
Very limited	1.00

The numerical ratings used to express the severity of individual limitations indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation.

Limitation class terms and numerical ratings are shown for each limiting soil feature listed. As many as three soil features may be listed for each component. The overall limitation rating for the component is based on the most severe limitation.

Land application of manure and food-processing waste not only disposes of waste material but also improves crop production by increasing the supply of nutrients in the soils where the material is applied. Manure is the excrement of livestock and poultry, and food-processing waste is damaged fruit and vegetables and the peelings, stems, leaves, pits, and soil particles removed in food preparation. The manure and food-processing waste are either solid, slurry, or liquid. Their nitrogen content varies. A high content of nitrogen limits the application rate. Toxic or otherwise dangerous wastes, such as those mixed with the lye used in food processing, are not considered in the ratings.

The ratings are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the waste is applied, and the method by which the waste is applied. The properties that affect absorption include permeability, a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, and available water capacity. The properties that affect plant growth and microbial activity include reaction, the sodium adsorption ratio, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

Land application of municipal sewage sludge not only disposes of waste material but also improves

crop production by increasing the supply of nutrients in the soils where the material is applied. In the context of this table, sewage sludge is the residual product of the treatment of municipal sewage. The solid component consists mainly of cell mass, primarily bacteria cells that developed during secondary treatment and have incorporated soluble organics into their own bodies. The sludge has small amounts of sand, silt, and other solid debris. The content of nitrogen varies. Some sludge has constituents that are toxic to plants or hazardous to the food chain, such as heavy metals and exotic organic compounds, and should be analyzed chemically prior to use.

The content of water in the sludge ranges from about 98 percent to less than 40 percent. The sludge is considered liquid if it is more than about 90 percent water, slurry if it is about 50 to 90 percent water, and solid if it is less than about 50 percent water.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, the rate at which the sludge is applied, and the method by which the sludge is applied. The properties that affect absorption, plant growth, and microbial activity include permeability, a water table, ponding, the sodium adsorption ratio, depth to bedrock or a cemented pan, available water capacity, reaction, salinity, and bulk density. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of sludge.

Disposal of wastewater by irrigation not only disposes of municipal wastewater and wastewater from food-processing plants, lagoons, and storage ponds but also improves crop production by increasing the amount of water available to crops. The ratings in the table are based on the soil properties that affect the design, construction, management, and performance of the irrigation system. The properties that affect design and management include the sodium adsorption ratio, a water table, ponding, available water capacity, permeability, slope, and flooding. The properties that affect construction include stones, cobbles, depth to bedrock or a cemented pan, a water table, and ponding. The properties that affect performance include depth to bedrock or a cemented pan, bulk density, the sodium adsorption ratio, salinity, reaction, and the cation-exchange capacity, which is used to estimate the capacity of a soil to adsorb heavy metals.

Treatment of wastewater by slow rate process is a process in which wastewater is applied to land at a rate normally between 0.5 inch and 4.0 inches per week. The application rate commonly exceeds the rate needed for irrigation of cropland. The applied wastewater is treated as it moves through the soil. Much of the treated water percolates to the ground water, and some enters the atmosphere through evapotranspiration. The applied water generally is not allowed to run off the surface. Waterlogging is prevented either through control of the application rate or through the use of tile drains, or both.

The ratings in the table are based on the soil properties that affect absorption, plant growth, microbial activity, erodibility, and the application of waste. The properties that affect absorption include the sodium adsorption ratio, a water table, ponding, available water capacity, permeability, depth to bedrock or a cemented pan, reaction, the cation-exchange capacity, and slope. Reaction, the sodium adsorption ratio, salinity, and bulk density affect plant growth and microbial activity. The wind erodibility group, the soil erodibility factor K, and slope are considered in estimating the likelihood of wind erosion or water erosion. Stones, cobbles, a water table, ponding, and flooding can hinder the application of waste.

Treatment of wastewater by rapid infiltration process is a process in which wastewater applied in a level basin at a rate of 4 to 120 inches per week percolates through the soil, eventually reaching the ground water. The application rate commonly exceeds the rate needed for irrigation of cropland. Vegetation is not a necessary part of the treatment; hence, the basins may or may not be vegetated. The thickness of the soil material needed for proper treatment of the wastewater is more than 72 inches. As a result, geologic and hydrologic investigation is needed to ensure proper design and performance and to determine the risk of ground-water pollution.

The ratings in the table are based on the soil properties that affect the risk of pollution and the design, construction, and performance of the system. A water table, ponding, flooding, and depth to bedrock or a cemented pan affect the risk of pollution and the design and construction of the system. Slope, stones, and cobbles also affect design and construction. Permeability and reaction affect performance.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 18 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

Texture is given in abbreviations of the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter (fig. 18). "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50

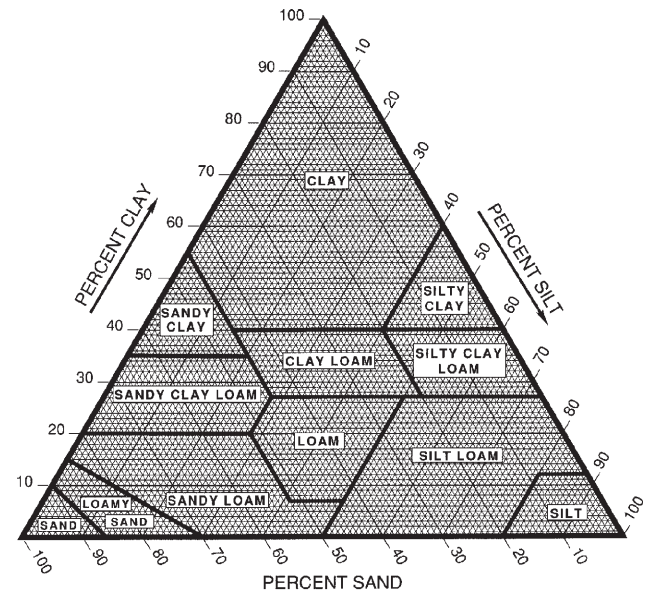


Figure 18.—Percentages of clay, silt, and sand in the basic USDA soil textural classes.

percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as about 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and plasticity index (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical Properties

Table 19 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In the table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In the table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $1/3$ - or $1/10$ -bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity refers to the ability of a soil to transmit water or air. The term

“permeability,” as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in micrometers per second (um/sec), when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $1/3$ - or $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (K_w and K_f) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill

erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor K_w indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor K_f indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.
- 4L. Calcareous loams, silt loams, clay loams, and silty clay loams.
4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to

wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 20 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable bases plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have pH of less than 5.5.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Water Features

Table 21 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are

thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to two hydrologic groups in the table, the first letter is for drained areas and the second is for undrained areas.

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and frequency are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is

likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year). Probable dates are expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on observations of the water table at selected sites and on the evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. Indicated in the table are depth to the seasonal high water table, the kind of water table, and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in the table.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Soil Features

Table 22 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal

properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the thickness and hardness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage mainly to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1998 and 1999). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 23 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning minimal horizonation, plus *udalf*, the suborder of the Alfisols that has a udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-silty, mixed, superactive, mesic Typic Hapludalfs.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 1998). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Arkana Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Uplands

Parent material: Gravelly colluvium (hillslope sediments) over clayey residuum derived from cherty dolostone

Slope range: 3 to 8 percent

Taxonomic classification: Very fine, mixed, active, mesic Mollic Hapludalfs

Typical Pedon

Arkana gravelly silt loam, 3 to 8 percent slopes; UTM Zone 15; UTM coordinates 552780 meters Easting and 4253820 meters Northing:

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) gravelly silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine and fine roots; 15 percent subangular chert gravel; strongly acid; clear smooth boundary.

A2—3 to 8 inches; very dark grayish brown (10YR 3/2) gravelly silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine and fine roots; 20 percent subangular chert gravel; moderately acid; clear smooth boundary.

E—8 to 14 inches; brown (10YR 5/3) very gravelly loam; weak fine granular structure; friable; many very fine and fine roots; 45 percent subangular chert gravel and 10 percent subangular chert cobbles; moderately acid; gradual smooth boundary.

2Bt1—14 to 23 inches; strong brown (7.5YR 4/6) gravelly clay; weak fine prismatic structure parting to moderate fine subangular blocky; firm; common very fine and fine roots; many distinct discontinuous clay films on faces of ped; very few prominent discontinuous manganese or iron-manganese stains on faces of ped; common fine irregular red (2.5YR 4/6) masses of iron accumulation throughout; 25 percent subangular chert gravel and 5 percent subangular chert cobbles; moderately acid; clear wavy boundary.

2Bt2—23 to 30 inches; yellowish brown (10YR 5/6) gravelly clay; moderate fine prismatic structure parting to moderate fine subangular blocky; firm; common very fine roots; many distinct continuous brown (10YR 5/3) clay films on faces of ped; common fine irregular yellowish red (5YR 4/6) masses of iron accumulation throughout; 10 percent subangular chert gravel and 5 percent subangular chert cobbles; moderately acid; clear smooth boundary.

2Bt3—30 to 33 inches; yellowish brown (10YR 5/4) silty clay; moderate medium prismatic structure parting to moderate fine subangular blocky; firm; common very fine roots; common distinct discontinuous clay films on faces of ped; common fine irregular pale brown (10YR 6/3) masses of weathered dolostone throughout; 3

percent subangular chert gravel; slightly alkaline; abrupt smooth boundary.
2R—33 inches; dolostone bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

E horizon:

Color—chroma of 3 or 4

Texture—very gravelly silt loam or very gravelly loam

2Bt horizon:

Color—hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 to 6

Texture—silty clay, clay, gravelly silty clay, or gravelly clay

Bardley Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Uplands

Parent material: Gravelly colluvium (hillslope sediments) over clayey residuum derived from dolostone

Slope range: 15 to 99 percent

Taxonomic classification: Very fine, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Bardley very gravelly silt loam, in an area of Bardley-Moko complex, 3 to 15 percent slopes, very stony, in Miller County, Missouri; UTM Zone 15; UTM coordinates 549375 meters Easting and 4235350 meters Northing:

A—0 to 4 inches; dark grayish brown (10YR 4/2) very gravelly silt loam; weak fine granular structure; friable; common very fine and fine roots throughout; many very fine and fine vesicular and tubular pores; 40 percent subangular chert gravel; moderately acid; clear smooth boundary.

E—4 to 10 inches; brown (10YR 4/3) very gravelly loam; weak fine granular structure; friable; common fine and medium roots throughout; many very fine and fine vesicular and tubular pores; 55 percent subangular chert gravel; strongly acid; clear smooth boundary.

2Bt1—10 to 21 inches; 70 percent red (2.5YR 4/6) and 30 percent yellowish red (5YR 5/6) clay; moderate fine and medium subangular blocky structure; firm; common fine, medium, and coarse roots

throughout; common very fine and fine vesicular and tubular pores; few distinct continuous reddish brown (2.5YR 4/4) clay films on faces of peds; 5 percent subangular chert gravel; very strongly acid; clear smooth boundary.

2Bt2—21 to 27 inches; 85 percent yellowish red (5YR 4/6), 10 percent dark red (2.5YR 3/6), and 5 percent strong brown (7.5YR 5/6) clay; moderate fine and medium subangular blocky structure; firm; common fine and medium roots throughout; common very fine and fine vesicular and tubular pores; few prominent discontinuous very dark grayish brown (10YR 3/2) organic coats throughout; few distinct continuous reddish brown (5YR 4/4) clay films on faces of peds; 5 percent subangular chert gravel; slightly acid; abrupt smooth boundary.

2R—27 inches; dolostone bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

A horizon:

Color—value of 3 or 4 and chroma of 2 or 3
Texture—very gravelly silt loam or extremely gravelly silt loam

E horizon:

Color—value of 4 to 6 and chroma of 2 to 4
Texture—the gravelly to extremely gravelly analogs of silt loam or loam

2Bt horizon:

Color—hue of 2.5YR to 7.5YR, value of 3 to 5, and chroma of 4 to 6
Texture—silty clay, clay, gravelly silty clay, or gravelly clay

Blake Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landform: Flood plains

Parent material: Silty alluvium

Slope range: 0 to 2 percent

Taxonomic classification: Fine-silty, mixed, superactive, calcareous, mesic Aquic Udifluvents

Typical Pedon

Blake loam, 0 to 2 percent slopes, occasionally flooded; UTM Zone 15; UTM coordinates 566810 meters Easting and 4275640 meters Northing:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2)

loam; weak fine granular structure; friable; common very fine and fine roots; slight effervescence; slightly alkaline; abrupt smooth boundary.

C1—8 to 30 inches; stratified dark grayish brown (10YR 4/2) and very dark grayish brown (10YR 3/2) silty clay loam and silt loam; friable; common very fine and fine roots; slightly alkaline; slight effervescence; clear wavy boundary.

C2—30 to 54 inches; stratified dark grayish brown (10YR 4/2), black (10YR 2/1), and dark gray (10YR 4/1) silt loam; common very fine roots; strong effervescence; moderately alkaline; gradual irregular boundary.

C3—54 to 60 inches; dark gray (10YR 4/1) very fine sandy loam; massive; loose; strong effervescence; moderately alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

C horizon:

Color—value of 2 to 4 and chroma of 1 or 2

Texture—silt loam, very fine sandy loam, loam, or silty clay loam

Caneyville Series

Depth class: Moderately deep

Drainage class: Well drained

Landform: Uplands

Parent material: Clayey residuum derived from dolostone

Slope range: 3 to 8 percent

Taxonomic classification: Fine, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Caneyville silty clay loam, 3 to 8 percent slopes, eroded; UTM Zone 15; UTM coordinates 552540 meters Easting and 4260200 meters Northing:

Ap—0 to 7 inches; brown (10YR 4/3) silty clay loam; moderate fine granular structure; friable; many fine roots; many fine interstitial pores; 2 percent angular chert gravel; neutral; abrupt smooth boundary.

Bt1—7 to 14 inches; yellowish red (5YR 4/6) silty clay; moderate fine subangular blocky structure; very firm; many fine roots; few fine tubular pores; few distinct continuous brown (10YR 5/3) silt coats on vertical faces of peds; common distinct continuous reddish brown (5YR 4/3) clay films on faces of

pedes; few prominent discontinuous manganese or iron-manganese stains on faces of pedes; 2 percent angular chert gravel; moderately acid; clear smooth boundary.

Bt2—14 to 21 inches; 85 percent yellowish red (5YR 4/6) and 15 percent red (2.5YR 4/8) silty clay; strong fine subangular blocky structure; very firm; common fine roots; few fine tubular pores; few prominent discontinuous silt coats in root channels and/or pores; many prominent continuous clay films on faces of pedes; few prominent discontinuous manganese or iron-manganese stains on faces of pedes; few fine rounded iron-manganese concretions; 5 percent angular chert gravel; strongly acid; clear smooth boundary.

Bt3—21 to 32 inches; 75 percent yellowish red (5YR 4/6) and 25 percent brown (10YR 5/3) silty clay; strong fine subangular blocky structure; very firm; few fine roots; few fine tubular pores; few prominent discontinuous silt coats in root channels and/or pores; many prominent continuous clay films on faces of pedes; few prominent discontinuous manganese or iron-manganese stains on faces of pedes; few fine rounded iron-manganese concretions; 5 percent angular chert gravel; strongly acid; clear smooth boundary.

Bt4—32 to 36 inches; 75 percent red (2.5YR 4/6) and 25 percent brown (10YR 5/3) gravelly silty clay; strong fine subangular blocky structure; very firm; few fine roots; few fine tubular pores; very few prominent discontinuous silt coats in root channels; many prominent continuous clay films on faces of pedes; very few prominent discontinuous black stains on faces of pedes; 20 percent angular chert gravel; slightly acid; abrupt smooth boundary.

R—36 inches; dolostone bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

Bt horizon:

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 3 to 8

Texture—silty clay, clay, gravelly silty clay, or gravelly clay

Cedargap Series

Depth class: Very deep

Drainage class: Well drained

Landform: Flood plains

Parent material: Gravelly alluvium

Slope range: 0 to 3 percent

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Cumulic Hapludolls

Typical Pedon

Cedargap gravelly silt loam, 0 to 3 percent slopes, frequently flooded; UTM Zone 15; UTM coordinates 611230 meters Easting and 4213450 meters Northing:

A1—0 to 9 inches; very dark grayish brown (10YR 3/2) gravelly silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many very fine and fine and common medium roots throughout; 15 percent subangular chert gravel and 5 percent subangular chert cobbles; strongly acid; clear smooth boundary.

A2—9 to 19 inches; very dark grayish brown (10YR 3/2) extremely gravelly sandy clay loam, grayish brown (10YR 5/2) dry; moderate fine subangular blocky structure; friable; many very fine and fine roots throughout; 50 percent subangular chert gravel and 10 percent subangular chert cobbles; strongly acid; clear smooth boundary.

A3—19 to 31 inches; very dark grayish brown (10YR 3/2) extremely gravelly coarse sandy loam, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure; friable; common very fine and fine roots throughout; 50 percent subangular chert gravel and 10 percent subangular chert cobbles; slightly acid; gradual smooth boundary.

Bw1—31 to 39 inches; brown (10YR 4/3) extremely gravelly coarse sandy loam; weak fine subangular blocky structure; friable; common very fine and fine roots throughout; 55 percent subangular chert gravel and 5 percent subangular chert cobbles; neutral; clear smooth boundary.

Bw2—39 to 43 inches; brown (10YR 5/3) extremely gravelly coarse sandy loam; weak fine subangular blocky structure; friable; common very fine and fine roots throughout; common fine rounded black (7.5YR 2/1) soft dark nodules throughout; common fine irregular dark yellowish brown (10YR 4/4) masses of iron accumulation throughout; 60 percent subangular chert gravel; neutral; clear smooth boundary.

Bw3—43 to 48 inches; brown (10YR 5/3) gravelly coarse sandy loam; weak fine subangular blocky structure; friable; few very fine and fine roots throughout; common fine faint grayish brown (10YR 5/2) irregular iron depletions between pedes; common fine rounded black (7.5YR 2/1) soft dark nodules throughout; many fine irregular yellowish brown (10YR 5/8) masses of iron accumulation throughout; 25 percent subangular chert gravel; neutral; clear smooth boundary.

2Bw4—48 to 55 inches; yellowish brown (10YR 5/8) gravelly clay; moderate fine subangular blocky structure; firm; many medium prominent light gray (2.5Y 7/1) irregular iron depletions between peds; 25 percent subangular chert gravel and 5 percent subangular chert cobbles; neutral; clear smooth boundary.

2Bw5—55 to 80 inches; 60 percent yellowish brown (10YR 5/8) and 40 percent light gray (2.5Y 7/1) clay; moderate medium prismatic structure parting to moderate fine angular blocky; firm; 5 percent subangular chert gravel; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

A1 or Ap horizon:

Color—chroma of 2 or 3

A2 and A3 horizons:

Color—chroma of 2 or 3

Texture—the gravelly to extremely gravelly analogs of silt loam, loam, sandy clay loam, or coarse sandy loam

Bw horizon (if it occurs):

Color—value of 4 or 5

Texture—the gravelly to extremely gravelly analogs of coarse sandy loam, sandy loam, or clay loam

2Bw or 2C horizon:

Color—hue of 2.5Y or 10YR, value of 5 to 7, and chroma of 1 to 8

Texture—clay or gravelly clay

Cotton Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landform: Uplands

Parent material: Loess over silty colluvium (hillslope sediments) over clayey residuum derived from dolostone

Slope range: 1 to 8 percent

Taxonomic classification: Fine, smectitic, mesic

Fragiaquic Hapludalfs

Typical Pedon

Cotton silt loam, 1 to 3 percent slopes, eroded; UTM Zone 15; UTM coordinates 567280 meters Easting and 4246950 meters Northing:

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many very fine roots throughout; many fine interstitial

pores; few rounded iron-manganese concretions; slightly acid; abrupt smooth boundary.

Bt1—9 to 14 inches; strong brown (7.5YR 5/6) silt loam; weak fine subangular blocky structure; firm; many very fine roots throughout; common fine interstitial pores; many discontinuous prominent strong brown (7.5YR 4/6) clay films on faces of peds; many discontinuous prominent brown (10YR 5/3) clay depletions; common fine prominent grayish brown (10YR 5/2) iron depletions; few rounded iron-manganese concretions; common fine distinct strong brown (7.5YR 5/8) masses of iron accumulations; slightly acid; gradual smooth boundary.

Bt2—14 to 22 inches; strong brown (7.5YR 4/6) silty clay; moderate fine subangular blocky structure; firm; common very fine roots throughout; few fine tubular pores; many continuous prominent reddish brown (5YR 4/4) clay films on faces of peds; common discontinuous prominent brown (10YR 5/3) clay depletions; many fine prominent grayish brown (10YR 5/2) iron depletions; few rounded iron-manganese concretions; common fine distinct red (2.5YR 4/8) masses of iron accumulation; very strongly acid; clear smooth boundary.

Bt3—22 to 27 inches; 60 percent strong brown (7.5YR 4/6) and 40 percent grayish brown (10YR 5/2) silty clay; moderate fine subangular blocky structure; firm; common very fine roots throughout; few fine tubular pores; common discontinuous prominent brown (7.5YR 4/4) clay films; common discontinuous distinct grayish brown (10YR 5/2) clay depletions on faces of peds; few iron-manganese concretions; common fine distinct strong brown (7.5YR 5/8) masses of iron accumulation; very strongly acid; gradual smooth boundary.

2Btx1—27 to 36 inches; 55 percent dark yellowish brown (10YR 4/4) and 45 percent grayish brown (10YR 5/2) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; firm; 40 percent brittleness; few very fine roots throughout; common fine tubular pores; few continuous distinct brown (7.5YR 4/4) clay films on vertical faces of peds; many continuous distinct grayish brown (10YR 5/2) clay depletions on vertical faces of peds; few discontinuous prominent black (10YR 2/1) manganese or iron-manganese stains on vertical faces of peds; common fine prominent yellowish brown (10YR 5/8) masses of iron accumulation; 1 percent angular chert gravel; very strongly acid; clear smooth boundary.

2Btx2—36 to 49 inches; yellowish brown (10YR 5/4)

silt loam; weak coarse prismatic structure parting to weak coarse subangular blocky; very firm; 45 percent brittleness; few very fine roots between peds; common fine tubular pores; few continuous distinct brown (7.5YR 4/4) clay films on vertical faces of peds; common continuous distinct grayish brown (10YR 5/2) clay depletions on vertical faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions; few discontinuous prominent black (10YR 2/1) manganese or iron-manganese stains on vertical faces of peds; few fine distinct dark yellowish brown (10YR 4/6) masses of iron accumulation; 2 percent angular chert gravel; strongly acid; clear smooth boundary.

3Btx3—49 to 66 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent grayish brown (10YR 5/2) extremely gravelly silt loam; weak coarse prismatic structure parting to moderate fine subangular blocky; very firm; 50 percent brittleness; few very fine roots around fragments; few fine tubular pores; few continuous distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many continuous distinct grayish brown (10YR 5/2) clay depletions on faces of peds; few discontinuous prominent black (10YR 2/1) manganese or iron-manganese stains on vertical faces of peds; 65 percent angular chert gravel and 5 percent angular chert cobbles; slightly acid; gradual smooth boundary.

4Bt—66 to 80 inches; 55 percent dark yellowish brown (10YR 4/6) and 45 percent grayish brown (10YR 5/2) very gravelly clay; moderate fine subangular blocky structure; very firm; few very fine roots throughout; few fine tubular pores; many continuous prominent red (2.5YR 4/6) clay films on faces of peds; few discontinuous prominent black (10YR 2/1) manganese or iron-manganese stains on vertical faces of peds; many fine distinct strong brown (7.5YR 5/6) masses of iron accumulation; 35 percent angular chert gravel and 5 percent angular chert cobbles; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Depth to brittle layer: 20 to 40 inches

Ap horizon:

Color—value of 4 or 5 and chroma of 2 or 3

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 6

Texture—silt loam, silty clay loam, or silty clay

2Btx horizon:

Color—value of 4 or 5 and chroma of 2 to 4

Texture—silt loam or silty clay loam

3Btx horizon:

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 to 6

Texture—the gravelly to extremely gravelly analogs of silt loam or loam

3Bt or 4Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 6

Texture—silty clay or clay or the gravelly to extremely gravelly analogs of these textures

Deible Series

Depth class: Very deep

Drainage class: Poorly drained

Landform: Stream terraces

Parent material: Clayey alluvium

Slope range: 0 to 2 percent

Taxonomic classification: Fine, mixed, active, mesic

Typic Albaqualfs

Typical Pedon

Deible silt loam, 0 to 2 percent slopes, occasionally flooded; UTM Zone 15; UTM coordinates 576080 meters Easting and 4264680 meters Northing:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; many very fine and fine roots throughout; few fine irregular strong brown (7.5YR 5/6) masses of iron accumulation throughout; neutral; abrupt smooth boundary.

E—7 to 13 inches; light brownish gray (10YR 6/2) silt loam; moderate fine subangular blocky structure; friable; common very fine and fine roots throughout; few fine and medium rounded dark brown (7.5YR 3/2) iron concretions throughout; few fine irregular strong brown (7.5YR 4/6) masses of iron accumulation throughout; strongly acid; abrupt smooth boundary.

Btg1—13 to 24 inches; grayish brown (10YR 5/2) silty clay; weak fine subangular blocky structure; firm; common very fine roots throughout; common distinct discontinuous grayish brown (10YR 5/2) clay films on faces of peds; few fine and medium rounded dark brown (7.5YR 3/2) iron concretions throughout; common fine irregular strong brown (7.5YR 5/6) masses of iron accumulation

throughout; strongly acid; gradual smooth boundary.

Btg2—24 to 32 inches; grayish brown (10YR 5/2) silty clay; moderate fine prismatic structure parting to weak fine subangular blocky; firm; common very fine roots throughout; common distinct continuous grayish brown (10YR 5/2) clay films on faces of peds; few fine rounded dark brown (7.5YR 3/2) iron concretions throughout; common fine irregular strong brown (7.5YR 5/6) masses of iron accumulation throughout; very strongly acid; gradual smooth boundary.

Btg3—32 to 42 inches; grayish brown (2.5Y 5/2) silty clay; moderate fine prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots throughout; common distinct continuous grayish brown (2.5Y 5/2) clay films on faces of peds; few fine and medium rounded dark brown (7.5YR 3/2) iron concretions throughout; common fine irregular strong brown (7.5YR 5/6) masses of iron accumulation throughout; very strongly acid; clear smooth boundary.

Btg4—42 to 51 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots throughout; common distinct continuous grayish brown (2.5Y 5/2) clay films on faces of peds; few fine and medium rounded dark brown (7.5YR 3/2) iron concretions throughout; common fine and medium irregular strong brown (7.5YR 5/6) masses of iron accumulation throughout; moderately acid; gradual smooth boundary.

Btg5—51 to 80 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak medium prismatic structure parting to moderate fine and medium angular blocky; firm; few very fine roots throughout; common distinct continuous light brownish gray (2.5Y 6/2) clay films on faces of peds; few fine rounded dark brown (7.5YR 3/2) iron concretions throughout; common fine and medium irregular strong brown (7.5YR 5/8) masses of iron accumulation throughout; slightly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 4 or 5

E horizon:

Color—value of 4 to 6

Btg horizon:

Color—hue of 2.5Y or 10YR, value of 4 to 6, and chroma of 1 or 2

Texture—silty clay loam or silty clay

Dockery Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landform: Flood plains

Parent material: Silty alluvium

Slope range: 0 to 2 percent

Taxonomic classification: Fine-silty, mixed, superactive, nonacid, mesic Aquic Udifluvents

Typical Pedon

Dockery silt loam, 0 to 2 percent slopes, frequently flooded; UTM Zone 15; UTM coordinates 576500 meters Easting and 4257440 meters Northing:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; common very fine roots; few prominent discontinuous manganese or iron-manganese stains; few fine distinct yellowish brown (10YR 5/4) masses of iron accumulation; neutral; abrupt smooth boundary.

C1—10 to 34 inches; stratified dark grayish brown (10YR 4/2) silt loam; few thin strata of brown (10YR 5/3) silt loam and very dark gray (10YR 3/1) silty clay loam; friable; common very fine roots; common fine irregular yellowish brown (10YR 5/4 and 5/6) masses of iron accumulation throughout; neutral; clear wavy boundary.

C2—34 to 51 inches; stratified dark grayish brown (10YR 4/2) silt loam; few thin strata of brown (10YR 5/3) and very dark gray (10YR 3/1); friable; common fine and medium irregular brownish yellow (10YR 6/6) masses of iron accumulation throughout; slightly acid; clear wavy boundary.

C3—51 to 60 inches; stratified dark grayish brown (10YR 4/2) silt loam; few thin strata of brown (10YR 5/3) and very dark gray (10YR 3/1); friable; common fine and medium distinct gray (10YR 5/1) iron depletions; common fine and medium irregular dark yellowish brown (10YR 4/4) masses of iron accumulation throughout; slightly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 3 or 4

C horizon:

Color—value of 3 to 6 and chroma of 1 to 3

Texture—silt loam or silty clay loam

Eldon Series*Depth class:* Very deep*Drainage class:* Well drained*Landform:* Uplands*Parent material:* Clayey residuum derived from cherty dolostone*Slope range:* 3 to 8 percent*Taxonomic classification:* Clayey-skeletal, mixed, active, mesic Mollic Paleudalfs**Typical Pedon**

Eldon silt loam, 3 to 8 percent slopes; UTM Zone 15; UTM coordinates 495296 meters Easting and 4252057 meters Northing:

A—0 to 9 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; friable; many very fine and fine roots; many very fine and fine vesicular pores; 10 percent angular chert gravel; strongly acid; clear smooth boundary.

BA—9 to 17 inches; brown (10YR 4/3) very gravelly silt loam; weak fine subangular blocky structure parting to weak fine granular; firm; common very fine and fine roots; common very fine and fine vesicular pores; 70 percent angular chert gravel; strongly acid; gradual smooth boundary.

Bt1—17 to 27 inches; dark red (2.5YR 3/6) very gravelly clay; moderate fine and medium subangular blocky structure; firm; common very fine and fine roots; common very fine and fine vesicular pores; few distinct continuous yellowish red (5YR 5/6) clay films on faces of peds; common fine irregular grayish brown (10YR 5/2) soft relict iron depletions throughout; common fine irregular strong brown (7.5YR 5/6) masses of iron accumulation throughout; 55 percent angular chert gravel; very strongly acid; clear smooth boundary.

Bt2—27 to 39 inches; red (2.5YR 4/6) gravelly silty clay; moderate fine and medium subangular blocky structure; firm; common fine roots; common very fine and fine vesicular pores; few distinct continuous yellowish red (5YR 5/6) clay films throughout; common medium irregular grayish brown (10YR 5/2) soft relict iron depletions throughout; 25 percent angular chert gravel; very strongly acid; clear smooth boundary.

Bt3—39 to 45 inches; red (2.5YR 4/6) very gravelly silty clay; moderate fine and medium subangular blocky structure; firm; common very fine and fine vesicular pores; few distinct continuous yellowish red (5YR 5/6) clay films on faces of peds; many medium irregular grayish brown (10YR 5/2) soft relict iron depletions; common medium irregular strong brown (7.5YR 5/8) masses of iron accumulation throughout; 40 percent angular chert gravel; strongly acid; clear smooth boundary.

2Bt4—45 to 61 inches; reddish yellow (7.5YR 6/8) very gravelly silty clay; moderate fine and medium subangular blocky structure; firm; common very fine and fine vesicular pores; few prominent continuous yellowish red (5YR 5/6) clay films throughout; many medium irregular gray (10YR 5/1) soft relict iron depletions throughout; common fine irregular yellowish red (5YR 5/8) masses of iron accumulation throughout; 55 percent angular chert gravel; strongly acid.

Range in Characteristics*Depth to bedrock:* More than 60 inches*A or Ap horizon:*

Color—value and chroma of 2 or 3

BA horizon:

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 to 6

Texture—gravelly silt loam, very gravelly silt loam, or extremely gravelly silt loam

Bt and 2Bt horizons:

Color—hue of 2.5YR to 7.5YR, value of 3 to 6, and chroma of 4 to 8

Texture—the gravelly to extremely gravelly analogs of silty clay or clay

Freeburg Series*Depth class:* Very deep*Drainage class:* Somewhat poorly drained*Landform:* Stream terraces and footslopes*Parent material:* Silty alluvium*Slope range:* 0 to 3 percent*Taxonomic classification:* Fine-silty, mixed, superactive, mesic Aquic Hapludalfs**Typical Pedon**

Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded; UTM Zone 15; UTM coordinates 565310 meters Easting and 4247460 meters Northing:

Ap—0 to 10 inches; brown (10YR 4/3) silt loam; weak

fine granular structure; friable; few very fine roots; few fine iron-manganese concretions; slightly acid; abrupt smooth boundary.

- E—10 to 15 inches; brown (10YR 5/3) silt loam; weak fine subangular blocky structure; friable; few very fine roots; common prominent continuous clay depletions on faces of peds; few fine iron-manganese concretions; slightly acid; clear smooth boundary.
- Bt1—15 to 25 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure; firm; few very fine roots; common distinct discontinuous clay films on faces of peds; common distinct discontinuous clay depletions on faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions; few fine dark yellowish brown (10YR 4/6) masses of iron-manganese accumulation; strongly acid; gradual smooth boundary.
- Bt2—25 to 35 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; few very fine roots; many prominent continuous clay films on faces of peds; few distinct discontinuous clay depletions on vertical faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions; few fine distinct dark yellowish brown (10YR 4/6) masses of iron-manganese accumulation; very strongly acid; gradual smooth boundary.
- Bt3—35 to 45 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common prominent discontinuous clay films on vertical faces of peds; few distinct discontinuous clay depletions on vertical faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions; common fine distinct dark yellowish brown (10YR 4/6) masses of iron-manganese accumulation; very strongly acid; gradual smooth boundary.
- Bt4—45 to 55 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium subangular blocky structure; firm; few very fine roots; common distinct discontinuous clay films on vertical faces of peds; few prominent discontinuous clay depletions on vertical faces of peds; common fine distinct grayish brown (10YR 5/2) iron depletions; few fine masses of iron-manganese accumulation; very strongly acid; gradual smooth boundary.
- Bt5—55 to 80 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak coarse subangular blocky structure; firm; few very fine roots; common distinct discontinuous clay films on vertical faces of peds; few prominent discontinuous clay depletions on vertical faces of peds; common fine

distinct grayish brown (10YR 5/2) iron depletions; few fine masses of iron-manganese accumulation; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 4 or 5 and chroma of 2 or 3

E horizon (if it occurs):

Color—value of 4 to 6 and chroma of 2 to 4

Bt horizon:

Color—value of 4 to 6 and chroma of 2 to 6

Texture—silt loam or silty clay loam

Gatewood Series

Depth class: Moderately deep

Drainage class: Moderately well drained

Landform: Uplands

Parent material: Gravelly colluvium (hillslope sediments) over clayey residuum derived from cherty dolostone

Slope range: 3 to 20 percent

Taxonomic classification: Very fine, mixed, active, mesic Oxyaquic Hapludalfs

Typical Pedon

Gatewood gravelly silt loam, in an area of Gatewood-Moko complex, 8 to 20 percent slopes, very stony, in Miller County, Missouri; UTM Zone 15; UTM coordinates 571730 meters Easting and 4265080 meters Northing:

A—0 to 3 inches; very dark grayish brown (10YR 3/2) gravelly silt loam, dark grayish brown (10YR 4/2) dry; weak fine granular structure; friable; many very fine roots; 25 percent chert gravel; neutral; clear smooth boundary.

E—3 to 11 inches; brown (10YR 4/3) very gravelly silt loam; weak very fine subangular blocky structure; friable; many very fine roots; common discontinuous distinct organic stains on faces of peds; 50 percent chert gravel and 2 percent chert cobbles; neutral; gradual smooth boundary.

2Bt1—11 to 19 inches; yellowish red (5YR 4/6) gravelly clay; moderate fine subangular blocky structure; very firm; few very fine roots; common discontinuous distinct clay films on faces of peds; few dark red (2.5YR 3/6) masses of iron accumulation; 25 percent chert gravel and 5 percent chert cobbles; neutral; clear smooth boundary.

2Bt2—19 to 22 inches; 80 percent yellowish brown (10YR 5/4) and 20 percent yellowish red (5YR 4/6) gravelly clay; moderate fine subangular blocky structure; very firm; few very fine roots; common discontinuous distinct clay films on faces of peds; few iron concretions; few dark red (2.5YR 3/6) masses of iron accumulation; 30 percent chert gravel; neutral; abrupt smooth boundary.

2R—22 inches; dolomite bedrock.

Range in Characteristics

Depth to bedrock: 20 to 40 inches

A horizon:

Color—value of 3 or 4 and chroma of 2 or 3

E horizon:

Color—value of 4 or 5 and chroma of 2 or 3

Texture—the gravelly to extremely gravelly analogs of silt loam or loam

2Bt horizon:

Color—hue of 2.5YR to 10YR and value and chroma of 4 to 6

Texture—clay or gravelly clay

Gravois Series

Depth class: Very deep

Drainage class: Moderately well drained

Landform: Uplands

Parent material: Loess over residuum derived from cherty dolostone

Slope range: 3 to 20 percent

Taxonomic classification: Fine-silty, mixed, active, mesic Aquic Paleudalfs

Typical Pedon

Gravois silt loam, 8 to 15 percent slopes; UTM Zone 15; UTM coordinates 566430 meters Easting and 4246490 meters Northing:

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; moderate very fine granular structure; friable; many very fine roots; few manganese or iron-manganese stains; 10 percent angular chert gravel; slightly acid; abrupt smooth boundary.

Bt1—6 to 11 inches; strong brown (7.5YR 4/6) silt loam; moderate fine subangular blocky structure; firm; many very fine roots; many prominent silt coats on faces of peds; many distinct clay films on faces of peds; few fine masses of iron-manganese accumulation; 5 percent angular chert gravel; neutral; clear smooth boundary.

Bt2—11 to 20 inches; brown (7.5YR 4/4) silty clay loam; moderate very fine subangular blocky structure; firm; many very fine roots; few distinct silt coats on vertical faces of peds; many prominent clay films on faces of peds; few fine masses of iron-manganese accumulation; 1 percent angular chert gravel; moderately acid; clear smooth boundary.

Bt3—20 to 27 inches; brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; common very fine roots; common prominent clay films on faces of peds; common fine prominent grayish brown (10YR 5/2) iron depletions; common prominent clay depletions in root channels and/or pores; common fine prominent strong brown (7.5YR 5/8) masses of iron-manganese accumulation; 1 percent angular chert gravel; strongly acid; clear smooth boundary.

2Btx1—27 to 33 inches; dark yellowish brown (10YR 4/6) silt loam; weak thick platy structure parting to weak coarse subangular blocky; very firm; 40 percent brittleness; few very fine roots; common prominent clay films on vertical faces of peds; common fine prominent grayish brown (10YR 5/2) masses of iron depletions; common prominent clay depletions on vertical faces of peds; common fine masses of iron-manganese accumulation; 5 percent angular chert gravel; strongly acid; clear smooth boundary.

2Btx2—33 to 47 inches; dark yellowish brown (10YR 4/6) extremely gravelly silt loam; weak thick platy structure parting to weak medium subangular blocky; very firm; 30 percent brittleness; few very fine roots; common prominent clay films on vertical faces of peds; common prominent clay depletions on vertical faces of peds; common fine masses of iron-manganese accumulation; 65 percent chert gravel; neutral; gradual smooth boundary.

3Bt1—47 to 60 inches; strong brown (7.5YR 4/6) very gravelly loam; moderate fine subangular blocky structure; very firm; 15 percent brittleness; few very fine roots; many distinct clay films on vertical faces of peds; few distinct clay depletions on vertical faces of peds; few fine masses of iron-manganese accumulation; 55 percent chert gravel and 5 percent stones; neutral; gradual smooth boundary.

4Bt2—60 to 80 inches; 60 percent red (2.5YR 4/6) and 40 percent yellowish red (5YR 4/6) very gravelly clay; strong fine subangular blocky structure; very firm; many prominent clay films on faces of peds;

few fine masses of iron-manganese accumulation;
40 percent chert gravel; slightly alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

Depth to brittle layer: 18 to 40 inches

Ap horizon:

Color—chroma of 2 or 3

E horizon (if it occurs):

Color—value of 5 or 6

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6

Texture—silt loam or silty clay loam

2Btx horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 6

Texture—silt loam, loam, or silty clay loam or the gravelly to extremely gravelly analogs of these textures

3Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 6

Texture—the gravelly to extremely gravelly analogs of silt loam, loam, or silty clay loam

4Bt horizon:

Color—hue of 2.5YR to 10YR, value of 4 or 5, and chroma of 2 to 6

Texture—clay, gravelly clay, very gravelly clay, or very cobbly clay

Gunlock Series

Depth class: Very deep

Drainage class: Moderately well drained

Landform: Uplands

Parent material: Loess over silty colluvium (hillslope sediments) over clayey residuum derived from dolostone

Slope range: 3 to 8 percent

Taxonomic classification: Fine, mixed, active, mesic
Fragic Oxyaquic Hapludalfs

Typical Pedon

Gunlock silt loam, 3 to 8 percent slopes; UTM Zone 15; UTM coordinates 552350 meters Easting and 4259400 meters Northing:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; weak very fine subangular blocky structure; friable; many very fine and fine roots throughout; common

very fine interstitial and tubular pores; 1 percent subrounded chert gravel; neutral; abrupt smooth boundary.

Bt1—7 to 12 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure; friable; many very fine and fine roots throughout; common very fine interstitial and tubular pores; few faint discontinuous brown (10YR 5/3) silt coats on faces of peds; few faint discontinuous brown (10YR 4/3) clay films on faces of peds; 1 percent subangular chert gravel; neutral; clear smooth boundary.

Bt2—12 to 17 inches; brown (7.5YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine and fine roots throughout; common very fine interstitial and tubular pores; few faint discontinuous brown (10YR 5/3) silt coats on faces of peds; few distinct discontinuous brown (10YR 4/3) clay films on faces of peds; 1 percent subangular chert gravel; neutral; clear smooth boundary.

Bt3—17 to 29 inches; brown (7.5YR 4/4) silty clay; moderate fine subangular blocky structure; firm; few very fine roots throughout; few very fine interstitial and tubular pores; common distinct continuous dark grayish brown (10YR 4/2) clay films on faces of peds; few distinct discontinuous brown (10YR 5/3) clay depletions on faces of peds; few prominent discontinuous manganese or iron-manganese stains on faces of peds; common fine irregular dark red (2.5YR 3/6) masses of iron accumulation throughout; 2 percent subangular chert gravel; neutral; clear smooth boundary.

2Btx1—29 to 35 inches; brown (7.5YR 4/4) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; firm; 40 percent brittleness; few very fine roots throughout; few very fine tubular pores; common prominent continuous dark grayish brown (10YR 4/2) clay films on vertical faces of peds; few distinct discontinuous brown (10YR 5/3) clay depletions in root channels and/or pores; few prominent discontinuous manganese or iron-manganese stains on faces of peds; common fine irregular dark red (2.5YR 3/6) masses of iron accumulation throughout; 5 percent subangular chert gravel; neutral; gradual smooth boundary.

2Btx2—35 to 48 inches; brown (7.5YR 4/4) silty clay loam; weak coarse prismatic structure parting to weak medium subangular blocky; very firm; 40 percent brittleness; few very fine roots throughout; few very fine tubular pores; few distinct discontinuous dark grayish brown (10YR 4/2) clay films on vertical faces of peds; few distinct

discontinuous brown (10YR 5/3) clay depletions on vertical faces of peds; few prominent discontinuous manganese or iron-manganese stains on faces of peds; 10 percent subangular chert gravel; neutral; gradual smooth boundary.

3Bt1—48 to 59 inches; reddish brown (5YR 4/4) very gravelly clay loam; weak fine subangular blocky structure; very firm; 25 percent brittleness; few very fine interstitial and tubular pores; common distinct discontinuous reddish brown (5YR 4/3) clay films on faces of peds; 55 percent subangular chert gravel; neutral; gradual smooth boundary.

3Bt2—59 to 80 inches; reddish brown (2.5YR 4/4) very gravelly clay loam; weak fine subangular blocky structure; very firm; few very fine interstitial and tubular pores; common distinct discontinuous reddish brown (2.5YR 4/3) clay films on faces of peds; 40 percent subangular chert gravel; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

Depth to brittle layer: 20 to 34 inches

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6

Texture—silt loam, silty clay loam, or silty clay

2Btx horizon:

Color—hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 to 6

Texture—silt loam or silty clay loam

3Bt horizon:

Color—hue of 2.5YR to 10YR, value of 3 to 6, and chroma of 4 to 6

Texture—the gravelly to extremely gravelly analogs of clay loam, silty clay loam, or silty clay

Hacreek Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landform: Stream terraces

Parent material: Silty alluvium

Slope range: 0 to 2 percent

Taxonomic classification: Fine-silty, mixed, superactive, mesic Aquic Argiudolls

Typical Pedon

Hacreek silt loam, 0 to 2 percent slopes, occasionally flooded; UTM Zone 15; UTM coordinates 558200 meters Easting and 4256340 meters Northing:

Ap1—0 to 6 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak thin platy and moderate fine granular structure; friable; many very fine and fine roots throughout; many very fine low-continuity vesicular pores; moderately acid; abrupt smooth boundary.

Ap2—6 to 14 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; common very fine and fine roots throughout; many very fine low-continuity vesicular pores; slightly acid; clear smooth boundary.

AB—14 to 19 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine prismatic structure parting to weak fine granular; friable; common very fine and fine roots throughout; common very fine low-continuity vesicular pores; very few distinct discontinuous light brownish gray (10YR 6/2) clay depletions on faces of peds; slightly acid; clear smooth boundary.

Btg1—19 to 27 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine prismatic structure parting to moderate medium subangular blocky; firm; common very fine and fine roots throughout; common very fine low-continuity vesicular pores; common prominent continuous very dark grayish brown (10YR 3/2) clay films on faces of peds; few distinct discontinuous light brownish gray (10YR 6/2) clay depletions on faces of peds; moderately acid; clear smooth boundary.

Btg2—27 to 36 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium prismatic structure; firm; common very fine and fine roots throughout; common very fine low-continuity vesicular pores; many prominent continuous very dark grayish brown (10YR 3/2) clay films on faces of peds; few distinct discontinuous light brownish gray (10YR 6/2) clay depletions on faces of peds; strongly acid; clear smooth boundary.

Btg3—36 to 46 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate medium prismatic structure; firm; common very fine and fine roots throughout; common very fine low-continuity vesicular pores; many prominent continuous very dark grayish brown (10YR 3/2) clay films on faces of peds; few fine irregular strong brown (7.5YR 4/6) masses of iron accumulation throughout; strongly acid; clear smooth boundary.

Btg4—46 to 62 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium prismatic structure; firm; common very fine and fine roots throughout; common very fine low-continuity vesicular pores;

common prominent continuous dark grayish brown (10YR 4/2) clay films on faces of peds; common fine irregular strong brown (7.5YR 4/6) masses of iron accumulation throughout; strongly acid; clear smooth boundary.

Btg5—62 to 80 inches; grayish brown (10YR 5/2) silty clay loam; weak coarse prismatic structure parting to weak medium platy; firm; few very fine and fine roots throughout; common very fine low-continuity vesicular pores; few faint discontinuous dark grayish brown (10YR 4/2) clay films on faces of peds; few fine irregular dark brown (7.5YR 3/2) iron-manganese concretions throughout; common fine irregular strong brown (7.5YR 5/8) masses of iron accumulation throughout; 1 percent subrounded chert gravel; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Bt horizon (if it occurs):

Color—hue of 10YR, value of 4 or 5, and chroma of 2 or 3

Texture—silty clay loam

Btg horizon:

Color—value of 4 or 5

Texture—silt loam, loam, or silty clay loam

Hartville Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landform: Uplands

Parent material: Clayey colluvium (hillslope sediments)

Slope range: 3 to 8 percent

Taxonomic classification: Fine, mixed, active, mesic

Aquic Hapludalfs

Typical Pedon

Hartville silt loam, 3 to 8 percent slopes; UTM Zone 15; UTM coordinates 570840 meters Easting and 4247540 meters Northing:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam; moderate fine granular structure; friable; many very fine roots; few fine masses of iron-manganese accumulation; 1 percent chert gravel; slightly acid; abrupt smooth boundary.

Bt1—9 to 14 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; many very fine roots; few distinct discontinuous clay films on faces of peds; common fine prominent grayish brown (10YR 5/2)

iron depletions; many prominent continuous clay depletions on faces of peds; few fine prominent yellowish brown (10YR 5/8) masses of iron accumulation; moderately acid; clear smooth boundary.

Bt2—14 to 20 inches; 55 percent dark yellowish brown (10YR 4/4) and 45 percent dark grayish brown (10YR 4/2) silty clay loam; moderate fine subangular blocky structure; very firm; common very fine roots; many prominent continuous clay films on faces of peds; common prominent discontinuous clay depletions on faces of peds; common fine prominent strong brown (7.5YR 5/8) masses of iron-manganese accumulation; very strongly acid; gradual smooth boundary.

Bt3—20 to 30 inches; 55 percent grayish brown (10YR 5/2) and 45 percent dark yellowish brown (10YR 4/4) silty clay; moderate fine subangular blocky structure; very firm; common very fine roots; many prominent continuous clay films on faces of peds; few prominent discontinuous clay depletions on vertical faces of peds; common fine prominent strong brown (7.5YR 5/8) masses of iron-manganese accumulation; very strongly acid; gradual smooth boundary.

Bt4—30 to 40 inches; 55 percent grayish brown (10YR 5/2) and 45 percent dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; common prominent discontinuous clay films on faces of peds; few prominent discontinuous clay depletions on vertical faces of peds; common fine prominent strong brown (7.5YR 5/8) masses of iron-manganese accumulation; strongly acid; gradual smooth boundary.

Bt5—40 to 56 inches; 55 percent grayish brown (10YR 5/2) and 45 percent dark yellowish brown (10YR 4/6) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; common prominent discontinuous clay films on faces of peds; few prominent discontinuous clay depletions on vertical faces of peds; common fine masses of strong brown (7.5YR 5/8) iron-manganese accumulation; slightly acid; gradual smooth boundary.

2Btg—56 to 80 inches; grayish brown (2.5Y 5/2) clay; strong very fine subangular blocky structure; very firm; few very fine roots; many prominent continuous clay films on vertical faces of peds; few discontinuous pressure faces; common fine prominent dark yellowish brown (10YR 4/4) masses of iron-manganese accumulation; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 4 or 5 and chroma of 2 or 3

E or BE horizon (if it occurs):

Color—hue of 10YR, value of 5 or 6, and chroma of 3

Texture—silt loam

Bt horizon:

Color—value of 4 or 5 and chroma of 1 to 6

Texture—silty clay loam or silty clay

2Btg or 2Bt horizon (if it occurs):

Color—hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 1 to 3

Texture—silty clay loam, silty clay, or clay or the gravelly analogs of these textures

Harvester Series

Depth class: Very deep

Drainage class: Moderately well drained

Landform: Uplands

Parent material: Disturbed loess

Slope range: 3 to 15 percent

Taxonomic classification: Fine-silty, mixed, superactive, nonacid, mesic Oxyaquic Udorthents

Typical Pedon

Harvester silt loam, in an area of Urban land-Harvester complex, 3 to 15 percent slopes; UTM Zone 15; UTM coordinates 575930 meters Easting and 4268370 meters Northing:

C1—0 to 13 inches; brown (10YR 4/3) silt loam; moderate very fine subangular blocky structure (relict); friable; many very fine to coarse roots throughout; neutral; gradual smooth boundary.

C2—13 to 28 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky and moderate coarse angular blocky structure (relict); firm; many fine to coarse roots throughout; 1 percent subangular dolomite gravel; neutral; gradual smooth boundary.

C3—28 to 45 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky and moderate coarse angular blocky structure (relict); firm; common fine to coarse roots throughout; 7 percent subangular dolomite gravel; neutral; gradual smooth boundary.

C4—45 to 56 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky and moderate coarse angular blocky structure (relict);

firm; common fine to coarse roots throughout; 7 percent subangular dolomite gravel; neutral; gradual smooth boundary.

C5—56 to 66 inches; dark yellowish brown (10YR 4/4) silt loam; moderate coarse angular blocky structure (relict) parting to weak medium platy and weak fine subangular blocky; firm; common fine to coarse roots throughout; 8 percent subangular dolomite gravel; neutral; gradual smooth boundary.

C6—66 to 75 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky and moderate coarse angular blocky structure (relict); firm; common fine to coarse roots throughout; 6 percent subangular dolomite gravel; neutral; gradual smooth boundary.

C7—75 to 80 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure (relict); firm; common fine to coarse roots throughout; 3 percent subangular dolomite gravel; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

Special feature: Structure is relict rather than pedogenic.

C horizon:

Color—value of 4 or 5 and chroma of 3 to 6

Texture—silt loam or silty clay loam

Haynie Series

Depth class: Very deep

Drainage class: Well drained

Landform: Flood plains

Parent material: Alluvium

Slope range: 0 to 2 percent

Taxonomic classification: Coarse-silty, mixed, superactive, calcareous, mesic Mollic Udifluvents

Typical Pedon

Haynie silt loam, 0 to 2 percent slopes, occasionally flooded; UTM Zone 15; UTM coordinates 567880 meters Easting and 4275750 meters Northing:

Ap1—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam; moderate very fine granular structure; friable; common very fine and fine roots throughout; common very fine and fine high-continuity vesicular pores; slightly effervescent; slightly alkaline; clear smooth boundary.

Ap2—7 to 17 inches; very dark grayish brown (10YR 3/2) loam; weak fine granular structure; friable; common very fine and fine roots throughout; common very fine and fine high-continuity

vesicular pores; slightly effervescent; slightly alkaline; clear smooth boundary.

C1—17 to 32 inches; brown (10YR 5/3), stratified very fine sandy loam; massive; very friable; common very fine and fine roots throughout; common very fine to medium high-continuity vesicular pores; slightly effervescent; moderately alkaline; clear smooth boundary.

C2—32 to 51 inches; pale brown (10YR 6/3), stratified loamy fine sand; single grain; loose; common very fine and fine roots throughout; slightly effervescent; moderately alkaline; clear smooth boundary.

C3—51 to 68 inches; pale brown (10YR 6/3), stratified fine sand; single grain; loose; slightly effervescent; moderately alkaline; clear smooth boundary.

Cg—68 to 80 inches; dark grayish brown (10YR 4/2), stratified loam; massive; very friable; common fine and medium irregular dark yellowish brown (10YR 3/6) masses of iron accumulation throughout; slightly effervescent; moderately alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Texture—silt loam, loam, or very fine sandy loam

C horizon:

Color—value of 4 to 6 and chroma of 2 to 4

Texture—silt loam, loam, very fine sandy loam, loamy fine sand, or fine sand

Jamesfin Series

Depth class: Very deep

Drainage class: Well drained

Landform: Flood plains

Parent material: Silty alluvium

Slope range: 0 to 3 percent

Taxonomic classification: Fine-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts

Typical Pedon

Jamesfin silt loam, 0 to 3 percent slopes, frequently flooded; UTM Zone 15; UTM coordinates 549215 meters Easting and 4269620 meters Northing:

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; common very fine roots; slightly acid; abrupt smooth boundary.

Bw1—7 to 15 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; friable; common very fine roots;

common distinct organic coats on faces of peds; neutral; gradual smooth boundary.

Bw2—15 to 32 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; friable; few very fine roots; neutral; gradual smooth boundary.

Bw3—32 to 42 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; friable; few very fine roots; many distinct organic coats on faces of peds; neutral; gradual smooth boundary.

Bw4—42 to 60 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; friable; common distinct organic coats on faces of peds; neutral; gradual smooth boundary.

Bw5—60 to 80 inches; dark brown (10YR 3/3) silt loam, pale brown (10YR 6/3) dry; weak fine subangular blocky structure; friable; few distinct organic coats on faces of peds; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—chroma of 2 or 3

Bw horizon:

Color—value of 3 (6 dry) to 5 and chroma of 2 to 4

Texture—silt loam, loam, or silty clay loam

Jemerson Series

Depth class: Very deep

Drainage class: Well drained

Landform: Stream terraces

Parent material: Silty alluvium

Slope range: 0 to 3 percent

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Jemerson silt loam, 0 to 3 percent slopes, occasionally flooded; UTM Zone 15; UTM coordinates 560990 meters Easting and 4250760 meters Northing:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam; weak very fine subangular blocky structure; very friable; common very fine and fine roots; slightly acid; clear smooth boundary.

Bt1—8 to 18 inches; dark yellowish brown (10YR 4/4) silt loam; moderate fine subangular blocky structure; friable; few very fine roots; few distinct discontinuous silt coats on faces of peds; common faint continuous and few distinct discontinuous

dark brown (10YR 3/3) clay films on faces of ped; slightly acid; clear smooth boundary.

Bt2—18 to 29 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak thin platy structure parting to weak fine subangular blocky; firm; few very fine and fine roots; common faint continuous and common distinct discontinuous very dark grayish brown (10YR 3/2) clay films on faces of ped; slightly acid; diffuse smooth boundary.

Bt3—29 to 40 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; many distinct discontinuous and few prominent continuous clay films on vertical faces of ped and few faint discontinuous clay films on horizontal faces of ped; neutral; gradual smooth boundary.

Bt4—40 to 52 inches; brown (10YR 5/3) silty clay loam; moderate medium platy structure parting to weak fine subangular blocky; firm; few very fine roots; few faint discontinuous clay films on faces of ped; few fine faint grayish brown (10YR 5/2) iron depletions; common medium iron-manganese stains; many medium faint dark yellowish brown (10YR 4/4) masses of iron accumulation; neutral; gradual smooth boundary.

Bt5—52 to 67 inches; 90 percent yellowish brown (10YR 5/6) and 10 percent dark yellowish brown (10YR 4/4) silt loam; weak thick platy structure parting to weak medium subangular blocky; firm; few very fine roots; few prominent continuous very dark grayish brown (10YR 3/2) organic coats in root channels and/or pores; common faint discontinuous clay films on faces of ped and few prominent discontinuous very dark grayish brown (10YR 3/2) clay films on vertical faces of ped; many medium prominent grayish brown (10YR 5/2) iron depletions; neutral; gradual smooth boundary.

BC—67 to 80 inches; 90 percent yellowish brown (10YR 5/4) and 10 percent dark yellowish brown (10YR 4/4) silt loam; massive; friable; few very fine roots; very few prominent continuous very dark gray (10YR 3/1) clay films in root channels and/or pores; many medium distinct grayish brown (10YR 5/2) iron depletions; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

Bt horizon:

Color—value of 4 or 5 and chroma of 3 to 6

Texture—silt loam, loam, or silty clay loam

BC horizon (if it occurs):

Color—value of 4 or 5 and chroma of 3 to 6

Texture—silt loam, loam, or silty clay loam

2C horizon (if it occurs):

Color—value of 4 or 5 and chroma of 3 to 6

Texture—gravelly loam

Kliever Series

Depth class: Very deep

Drainage class: Well drained

Landform: Uplands (abandoned stream terraces along the Missouri River)

Parent material: Alluvium

Slope range: 2 to 20 percent

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Kliever loam, 2 to 5 percent slopes; UTM Zone 15; UTM coordinates 552315 meters Easting and 4285420 meters Northing:

Ap—0 to 8 inches; dark brown (10YR 3/3) loam, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; many very fine roots throughout; neutral; abrupt smooth boundary.

BE—8 to 17 inches; dark yellowish brown (10YR 4/4) loam; weak fine subangular blocky structure; very friable; common very fine roots throughout; few distinct silt coats on faces of ped; common distinct organic coats on faces of ped; neutral; clear smooth boundary.

Bt1—17 to 27 inches; dark yellowish brown (10YR 4/4) loam; moderate fine subangular blocky structure; friable; common very fine roots throughout; few distinct silt coats in root channels and/or pores; common distinct clay films on faces of ped; neutral; clear smooth boundary.

Bt2—27 to 41 inches; dark yellowish brown (10YR 4/4) loam; moderate fine subangular blocky structure; firm; common very fine roots throughout; few distinct silt coats in root channels and/or pores; many prominent clay films on faces of ped; neutral; gradual smooth boundary.

Bt3—41 to 52 inches; dark yellowish brown (10YR 4/6) loam; moderate medium subangular blocky structure; firm; few very fine roots throughout; few distinct silt coats in root channels and/or pores; many prominent clay films on faces of ped; neutral; abrupt smooth boundary.

2Bt4—52 to 64 inches; grayish brown (10YR 5/2) silt

loam; weak medium prismatic structure; firm; few very fine roots throughout; common prominent clay films on vertical faces of peds; common fine prominent yellowish brown (10YR 5/8) and few fine prominent strong brown (7.5YR 4/6) masses of iron accumulation; neutral; abrupt smooth boundary.

3Bt5—64 to 80 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium prismatic structure; firm; few very fine roots throughout; few prominent silt coats in root channels and/or pores; few prominent clay films on vertical faces of peds; neutral.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 3 (6 dry) or 4 and chroma of 3 or 4

BE horizon (if it occurs):

Color—value of 4 or 5

Texture—loam or silt loam

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 to 8

Texture—loam or clay loam

2Bt horizon:

Color—value of 4 or 5 and chroma of 2 to 6

Texture—silt loam or loam

3Bt horizon:

Color—value of 4 or 5 and chroma of 2 to 6

Texture—loam, silty clay loam, sandy loam, or sand

Leta Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landform: Flood plains

Parent material: Alluvium

Slope range: 0 to 2 percent

Taxonomic classification: Clayey over loamy, smectitic, mesic Fluvaquentic Hapludolls

Typical Pedon

Leta silty clay loam, 0 to 2 percent slopes, occasionally flooded; UTM Zone 15; UTM coordinates 562620 meters Easting and 4278200 meters Northing:

Ap—0 to 9 inches; very dark grayish brown (10YR 3/2) silty clay loam, very dark grayish brown (10YR

5/2) dry; weak fine granular structure; friable; common very fine roots throughout; strong effervescence; moderately alkaline; abrupt smooth boundary.

A—9 to 14 inches; very dark grayish brown (10YR 3/2) silty clay, very dark grayish brown (10YR 5/2) dry; weak medium angular blocky structure; firm; common very fine roots throughout; common fine vesicular pores; very few prominent discontinuous pressure faces on faces of peds; strong effervescence; slightly alkaline; clear smooth boundary.

Bw—14 to 22 inches; very dark grayish brown (10YR 3/2) silty clay, very dark grayish brown (10YR 5/2) dry; weak medium angular blocky structure parting to weak fine subangular blocky; firm; common very fine roots throughout; common fine vesicular pores; very few prominent discontinuous pressure faces on faces of peds; common fine irregular dark reddish brown (5YR 3/4) masses of iron accumulation throughout; strong effervescence; slightly alkaline; clear smooth boundary.

2C1—22 to 36 inches; 50 percent brown (10YR 4/3) and 50 percent dark grayish brown (10YR 4/2), stratified silt loam; very friable; common very fine roots throughout; common fine vesicular pores; common fine irregular dark reddish brown (5YR 3/4) masses of iron accumulation throughout; strong effervescence; moderately alkaline; clear smooth boundary.

2C2—36 to 44 inches; 80 percent brown (10YR 5/3) and 20 percent grayish brown (10YR 5/2), stratified very fine sandy loam; very friable; common very fine roots throughout; common fine vesicular pores; few thin platelike dark reddish brown (5YR 3/4) masses of iron accumulation; strong effervescence; moderately alkaline; abrupt smooth boundary.

2Cg1—44 to 49 inches; dark grayish brown (10YR 4/2), stratified silt loam; friable; common fine vesicular pores; few thin platelike dark reddish brown (5YR 3/4) masses of iron accumulation; strong effervescence; moderately alkaline; clear smooth boundary.

2Cg2—49 to 80 inches; dark grayish brown (10YR 4/2), stratified very fine sandy loam; very friable; common fine vesicular pores; strong effervescence; moderately alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 2 or 3 and chroma of 1 or 2

A horizon:

Color—value of 2 or 3 and chroma of 1 or 2

Texture—silty clay loam or silty clay

Bw horizon:

Color—value of 3 to 5

2C horizon:

Color—value of 4 or 5 and chroma of 2 or 3

Texture—silt loam, loam, very fine sandy loam, or loamy fine sand

Maplewood Series*Depth class:* Deep and very deep*Drainage class:* Somewhat poorly drained*Landform:* Uplands*Parent material:* Loess over clayey residuum derived from dolostone*Slope range:* 2 to 9 percent*Taxonomic classification:* Fine, mixed, active, mesic Fragiaquic Paleudalfs*Taxadjunct feature:* The Maplewood soil in map unit 73260 is shallower to bedrock than is defined as the range for the series. This soil is classified as a fine, mixed, active, mesic Fragiaquic Hapludalf.**Typical Pedon**

Maplewood silt loam, 5 to 9 percent slopes, eroded; UTM Zone 15; UTM coordinates 547100 meters Easting and 4261560 meters Northing:

Ap—0 to 8 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; friable; many very fine and fine roots throughout; many fine interstitial pores; few fine rounded iron-manganese concretions; strongly acid; abrupt smooth boundary.

Bt1—8 to 13 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots throughout; common fine tubular pores; few discontinuous faint silt coats on faces of peds; common continuous distinct clay films on faces of peds; many fine distinct grayish brown (10YR 5/2) iron depletions; common continuous distinct organic stains on faces of peds; few fine rounded iron-manganese concretions; strongly acid; clear smooth boundary.

Bt2—13 to 20 inches; yellowish brown (10YR 5/4) silty clay; moderate medium prismatic structure parting to moderate fine subangular blocky; firm; common very fine roots throughout; few fine tubular pores; many continuous prominent clay films on faces of peds and in pores; many fine distinct grayish brown (10YR 5/2) clay depletions; few fine

rounded iron-manganese concretions; few fine irregular yellowish red (5YR 4/6) masses of iron accumulation; strongly acid; clear smooth boundary.

2Btx1—20 to 34 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium prismatic structure parting to weak medium platy; firm; 45 percent brittleness; few very fine roots throughout; few fine tubular pores; common discontinuous distinct silt coats on vertical faces of peds; many continuous distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; few fine rounded iron-manganese concretions; few fine irregular strong brown (7.5YR 4/6) masses of iron accumulation; 5 percent angular chert gravel; slightly acid; abrupt smooth boundary.

3Btx2—34 to 42 inches; brown (7.5YR 5/4) very gravelly silty clay loam; weak fine subangular blocky structure; firm; 50 percent brittleness; few very fine roots throughout; few fine interstitial and tubular pores; common discontinuous distinct grayish brown (10YR 5/2) clay films on vertical faces of peds; common discontinuous prominent manganese or iron-manganese stains on faces of peds and in pores; 70 percent subangular chert gravel and 2 percent subangular chert cobbles; slightly acid; clear smooth boundary.

3Bt1—42 to 55 inches; 80 percent red (2.5YR 4/6) and 20 percent strong brown (7.5YR 5/6) extremely gravelly clay; moderate very fine subangular blocky structure; very firm; few very fine roots between peds; few fine interstitial and tubular pores; few discontinuous prominent yellowish brown (10YR 5/4) clay films in root channels and/or pores and many continuous distinct clay films on faces of peds; few discontinuous prominent manganese or iron-manganese stains on faces of peds and in pores; 65 percent subangular chert gravel and 5 percent subangular chert cobbles; neutral; clear smooth boundary.

3Bt2—55 to 63 inches; 90 percent yellowish red (5YR 5/6) and 10 percent strong brown (7.5YR 5/6) gravelly clay; moderate very fine subangular blocky structure; very firm; few very fine roots around fragments; few fine interstitial and tubular pores; few discontinuous prominent grayish brown (10YR 5/2) clay films in root channels and/or pores and many continuous distinct clay films on faces of peds; common discontinuous distinct pressure faces on faces of peds; many discontinuous prominent manganese or iron-manganese stains on faces of peds and in pores; 20 percent subangular chert gravel; neutral; abrupt smooth boundary.

4Bt3—63 to 80 inches; brown (7.5YR 5/4) very

paragravelly clay; moderate fine subangular blocky structure; very firm; few very fine roots throughout; few fine interstitial and tubular pores; common discontinuous distinct brown (7.5YR 4/4) clay films on faces of peds; 50 percent paragravel and 5 percent subangular chert gravel; neutral; abrupt smooth boundary.

5R—80 inches; dolomite bedrock.

Range in Characteristics

Depth to bedrock: 48 to more than 60 inches

Depth to brittle layer: 16 to 40 inches

EB horizon (if it occurs):

Color—hue of 10YR, value of 4 or 5, and chroma of 2

Texture—silt loam

Bt horizon:

Color—value of 4 or 5 and chroma of 3 or 4

Texture—silty clay loam or silty clay

2Btx and 3Btx horizons:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 to 6

Texture—silt loam or silty clay loam or the gravelly to extremely gravelly analogs of these textures

3Bt and 4Bt horizons:

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 2 to 8

Texture—silty clay or clay or the gravelly to extremely gravelly or paragravelly analogs of these textures

McGirk Series

Depth class: Very deep

Drainage class: Poorly drained

Landform: Uplands

Parent material: Clayey colluvium (hillslope sediments)

Slope range: 1 to 3 percent

Taxonomic classification: Fine, smectitic, mesic

Chromic Vertic Endoaqualfs

Typical Pedon

McGirk silt loam, 1 to 3 percent slopes; UTM Zone 15; UTM coordinates 563670 meters Easting and 4254500 meters Northing:

Ap1—0 to 5 inches; brown (10YR 4/3) silt loam; weak very fine subangular blocky structure; very friable; few very fine roots; few fine faint dark grayish brown (10YR 4/2) iron depletions; few fine irregular dark yellowish brown (10YR 4/6) masses

of iron accumulation throughout; 1 percent gravel; slightly acid; clear smooth boundary.

Ap2—5 to 12 inches; brown (10YR 4/3) silt loam; weak fine subangular blocky structure; friable; few very fine roots; few fine wormcasts; few fine faint dark grayish brown (10YR 4/2) iron depletions; common fine irregular dark yellowish brown (10YR 4/6) masses of iron accumulation throughout; 1 percent gravel; slightly acid; abrupt smooth boundary.

Btg1—12 to 16 inches; dark grayish brown (10YR 4/2) silty clay; moderate very fine subangular blocky structure; firm; few very fine roots; many faint continuous very dark grayish brown (10YR 3/2) clay films on faces of peds; few fine rounded iron-manganese concretions; common fine irregular yellowish brown (10YR 5/4) masses of iron accumulation throughout; 1 percent gravel; moderately acid; clear smooth boundary.

Btg2—16 to 30 inches; dark gray (10YR 4/1) silty clay; weak fine prismatic structure parting to moderate very fine subangular blocky; firm; few very fine roots; many faint continuous and few distinct discontinuous clay films on faces of peds; few fine rounded iron-manganese concretions; common fine irregular yellowish brown (10YR 5/6) masses of iron accumulation throughout; 1 percent gravel; moderately acid; clear wavy boundary.

Btg3—30 to 40 inches; grayish brown (10YR 5/2) silty clay; weak fine prismatic structure parting to moderate very fine subangular blocky; firm; common faint continuous and few distinct discontinuous clay films on faces of peds; few fine rounded iron-manganese concretions; many medium irregular yellowish brown (10YR 5/6) masses of iron accumulation throughout; 1 percent gravel; neutral; gradual smooth boundary.

Btg4—40 to 52 inches; light brownish gray (10YR 6/2) silty clay; weak fine prismatic structure parting to moderate very fine subangular blocky; very firm; few faint discontinuous and common distinct discontinuous clay films on faces of peds; few prominent discontinuous manganese or iron-manganese stains; common fine rounded iron-manganese concretions; many medium irregular yellowish brown (10YR 5/6) masses of iron accumulation throughout; 2 percent gravel; neutral; diffuse smooth boundary.

Btg5—52 to 80 inches; gray (10YR 6/1) silty clay; weak medium prismatic structure parting to moderate fine subangular blocky; very firm; few distinct discontinuous and few prominent discontinuous clay films on faces of peds; few

prominent discontinuous manganese or iron-manganese stains; few fine rounded iron-manganese concretions; many coarse irregular yellowish brown (10YR 5/8) masses of iron accumulation throughout; 3 percent gravel; slightly alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—chroma of 2 or 3

Btg horizon:

Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2

Texture—silty clay loam or silty clay

2Btg horizon (if it occurs):

Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2

Texture—silty clay

Menfro Series

Depth class: Very deep

Drainage class: Well drained

Landform: Uplands

Parent material: Loess

Slope range: 5 to 35 percent

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Menfro silt loam, 5 to 9 percent slopes; UTM Zone 15; UTM coordinates 553570 meters Easting and 4284460 meters Northing:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many very fine roots throughout; moderately acid; abrupt smooth boundary.

Bt1—8 to 14 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine subangular blocky structure; friable; many very fine roots throughout; few distinct silt coats in root channels and/or pores; common distinct clay films on faces of peds; neutral; clear smooth boundary.

Bt2—14 to 20 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; many very fine roots throughout; few faint silt coats in root channels and/or pores; common prominent clay films on faces of peds; neutral; clear smooth boundary.

Bt3—20 to 30 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky

structure; firm; common very fine roots throughout; few distinct silt coats in root channels and/or pores; many prominent clay films on faces of peds; very few prominent manganese or iron-manganese stains on horizontal faces of peds; neutral; gradual smooth boundary.

Bt4—30 to 40 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium subangular blocky structure; firm; common very fine roots throughout; common prominent clay films on vertical faces of peds; strongly acid; gradual smooth boundary.

Bt5—40 to 50 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium prismatic structure; firm; few very fine roots throughout; common prominent silt coats in root channels and/or pores; common prominent clay films on vertical faces of peds; very few prominent manganese or iron-manganese stains in root channels and/or pores; strongly acid; gradual smooth boundary.

Bt6—50 to 60 inches; dark yellowish brown (10YR 4/4) silt loam; weak coarse prismatic structure; firm; few very fine roots throughout; few prominent silt coats in root channels and/or pores; few faint clay films on vertical faces of peds; very few prominent manganese or iron-manganese stains on vertical faces of peds; strongly acid; gradual smooth boundary.

C—60 to 80 inches; dark yellowish brown (10YR 4/4) silt loam; massive; firm; few very fine roots throughout; few prominent silt coats in root channels and/or pores; very few prominent manganese or iron-manganese stains on vertical faces of peds; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap or A horizon:

Color—value and chroma of 3 or 4

E horizon (if it occurs):

Color—hue of 10YR, value of 4 or 5, and chroma of 3 or 4

Texture—silt loam

Bt horizon:

Color—value of 4 or 5 and chroma of 4 to 6

Texture—silt loam or silty clay loam

C horizon (if it occurs):

Color—value of 4 or 5 and chroma of 3 or 4

Moko Series

Depth class: Very shallow and shallow

Drainage class: Well drained

Landform: Uplands

Parent material: Gravelly residuum derived from dolostone

Slope range: 3 to 50 percent

Taxonomic classification: Loamy-skeletal, mixed, superactive, mesic Lithic Hapludolls

Typical Pedon

Moko gravelly loam, in an area of Gatewood-Moko complex, 8 to 20 percent slopes, very stony; UTM Zone 15; UTM coordinates 556550 meters Easting and 4256780 meters Northing:

A1—0 to 4 inches; black (10YR 2/1) gravelly loam, dark gray (10YR 4/1) dry; moderate very fine and fine subangular blocky structure; very friable; many very fine to medium roots; 20 percent subangular chert gravel and 14 percent subangular dolomite gravel; slightly alkaline; clear smooth boundary.

A2—4 to 7 inches; very dark gray (10YR 3/1) very channery loam, gray (10YR 5/1) dry; moderate fine subangular blocky structure; very friable; many very fine to medium roots; 10 percent subangular chert gravel and 30 percent subangular dolomite channers; slightly alkaline; abrupt smooth boundary.

R—7 inches; dolostone bedrock.

Range in Characteristics

Depth to bedrock: 4 to 20 inches

A horizon:

Color—value of 2 or 3 and chroma of 1 or 2

Texture—the gravelly, very gravelly, or very channery analogs of silt loam, loam, or clay loam

Moniteau Series

Depth class: Very deep

Drainage class: Poorly drained

Landform: Stream terraces

Parent material: Silty alluvium

Slope range: 0 to 2 percent

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Endoaqualfs

Typical Pedon

Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded; UTM Zone 15; UTM coordinates 565670 meters Easting and 4247650 meters Northing:

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable;

common very fine roots throughout; few very fine low-continuity tubular pores; few distinct iron stains; few fine masses of iron-manganese accumulation; slightly acid; abrupt smooth boundary.

E—10 to 15 inches; 70 percent grayish brown (10YR 5/2) and 30 percent dark grayish brown (10YR 4/2) silt loam; weak medium platy structure parting to weak very fine subangular blocky; friable; few very fine roots throughout; few very fine low-continuity tubular pores; many prominent clay depletions on faces of peds; common fine iron-manganese concretions; moderately acid; clear smooth boundary.

Btg1—15 to 20 inches; dark grayish brown (10YR 4/2) silt loam; weak fine subangular blocky structure; friable; few very fine roots throughout; few very fine low-continuity tubular pores; common distinct clay films; common distinct clay depletions; common fine iron-manganese concretions; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; very strongly acid; clear smooth boundary.

Btg2—20 to 30 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate very fine subangular blocky structure; firm; few very fine roots throughout; few very fine low-continuity tubular pores; many prominent clay films on faces of peds; few prominent clay depletions on vertical faces of peds; common fine iron-manganese concretions; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; very strongly acid; gradual smooth boundary.

Btg3—30 to 40 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium subangular blocky structure; firm; few very fine roots throughout; few very fine low-continuity tubular pores; common prominent clay films on faces of peds; common distinct clay depletions in root channels and/or pores; common fine iron-manganese concretions; common fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; strongly acid; gradual smooth boundary.

Btg4—40 to 53 inches; dark grayish brown (10YR 4/2) silt loam; moderate medium subangular blocky structure; firm; few very fine roots throughout; few very fine low-continuity tubular pores; common distinct clay films on faces of peds; few prominent clay depletions in root channels and/or pores; common fine iron-manganese concretions; few fine distinct dark yellowish brown (10YR 4/4) masses of iron accumulation; moderately acid; clear smooth boundary.

2Btg5—53 to 80 inches; dark gray (10YR 4/1) silty

clay; moderate fine subangular blocky structure; very firm; many prominent clay films on faces of peds; few distinct clay depletions in root channels and/or pores; few fine iron-manganese concretions; common fine prominent dark yellowish brown (10YR 4/6) masses of iron accumulation; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—chroma of 2 or 3

E horizon:

Color—value of 4 to 6

Btg horizon:

Color—value of 4 to 6 and chroma of 1 or 2

Texture—silt loam or silty clay loam

2Btg horizon (if it occurs):

Color—value of 4 to 6 and chroma of 1 or 2

Texture—silty clay loam or silty clay

Niangua Series

Depth class: Deep

Drainage class: Well drained

Landform: Uplands

Parent material: Gravelly colluvium (hillslope sediments) over clayey residuum derived from dolostone

Slope range: 15 to 50 percent

Taxonomic classification: Very fine, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Niangua very gravelly silt loam, in an area of Niangua-Bardley complex, 15 to 50 percent slopes, extremely stony; UTM Zone 15; UTM coordinates 551540 meters Easting and 4236460 meters Northing:

A—0 to 7 inches; dark grayish brown (10YR 4/2) very gravelly silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; common very fine, fine, and coarse roots throughout; many very fine and fine vesicular and tubular pores; 40 percent subangular chert gravel and 5 percent subangular chert cobbles; strongly acid; clear smooth boundary.

E—7 to 19 inches; pale brown (10YR 6/3) extremely gravelly silt loam; weak very fine and fine granular structure; friable; common fine, medium, and coarse roots throughout; many very fine and fine vesicular and tubular pores; 65 percent

subangular chert gravel and 10 percent subangular chert cobbles; moderately acid; gradual smooth boundary.

2Bt1—19 to 25 inches; 80 percent red (2.5YR 4/6) and 20 percent strong brown (7.5YR 5/6) gravelly clay; moderate fine subangular blocky structure; firm; common fine and medium roots throughout; common very fine vesicular and tubular pores; few distinct continuous reddish brown (2.5YR 4/4) clay films on faces of peds; common fine irregular black (10YR 2/1) masses of iron-manganese accumulation throughout; 15 percent subangular chert gravel; moderately acid; gradual smooth boundary.

2Bt2—25 to 39 inches; 90 percent red (2.5YR 4/6) and 10 percent brown (7.5YR 4/4) clay; moderate fine subangular blocky structure; firm; common fine roots throughout; common very fine and fine vesicular and tubular pores; few distinct continuous reddish brown (2.5YR 4/4) clay films on faces of peds; common fine irregular black (10YR 2/1) masses of iron-manganese accumulation throughout; 5 percent subangular chert gravel; moderately acid; gradual smooth boundary.

2Bt3—39 to 50 inches; 50 percent dark red (2.5YR 3/6), 40 percent red (2.5YR 4/6), and 10 percent strong brown (7.5YR 5/6) clay; moderate fine subangular blocky structure; firm; common very fine vesicular and tubular pores; few faint continuous reddish brown (2.5YR 4/4) clay films on faces of peds; 5 percent subangular chert gravel; slightly acid; abrupt wavy boundary.

2R—50 inches; dolostone bedrock.

Range in Characteristics

Depth to bedrock: 40 to 60 inches

A horizon:

Color—value of 2 to 4 and chroma of 1 to 4

E horizon:

Color—value of 5 or 6 and chroma of 3 or 4

Texture—very gravelly silt loam or extremely gravelly silt loam

2Bt horizon:

Color—hue of 2.5YR to 7.5YR, value of 3 to 5, and chroma of 4 to 8

Texture—clay or gravelly clay

Ocie Series

Depth class: Deep

Drainage class: Moderately well drained

Landform: Uplands

Parent material: Gravelly colluvium (hillslope sediments) over clayey residuum derived from cherty dolostone

Slope range: 3 to 35 percent

Taxonomic classification: Loamy-skeletal over clayey, mixed, semiactive, mesic Oxyaquic Hapludalfs

Typical Pedon

Ocie very gravelly silt loam, 15 to 35 percent slopes, extremely stony; UTM Zone 15; UTM coordinates 555960 meters Easting and 4259910 meters Northing:

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) very gravelly silt loam; moderate fine granular structure; friable; many very fine to medium roots; 35 percent subangular chert gravel; moderately acid; clear smooth boundary.

A2—3 to 7 inches; dark grayish brown (10YR 4/2) very gravelly silt loam; moderate fine granular structure; friable; many very fine to coarse roots; 35 percent subangular chert gravel; moderately acid; clear smooth boundary.

E—7 to 16 inches; brown (10YR 5/3) very gravelly silt loam; moderate fine subangular blocky and moderate fine granular structure; friable; many very fine to coarse roots; 40 percent subangular chert gravel; slightly acid; clear smooth boundary.

Bt1—16 to 23 inches; light yellowish brown (10YR 6/4) very gravelly loam; weak fine subangular blocky structure; firm; common very fine to medium roots; many distinct discontinuous light yellowish brown (10YR 6/4) silt coats on faces of peds; few distinct discontinuous clay films on faces of peds; 50 percent subangular chert gravel and 5 percent subangular chert cobbles; strongly acid; clear wavy boundary.

2Bt2—23 to 33 inches; 50 percent yellowish red (5YR 5/8) and 50 percent reddish brown (5YR 5/3) gravelly clay; weak medium prismatic structure parting to moderate fine subangular blocky; very firm; common very fine to medium roots; common distinct discontinuous clay films on faces of peds; 30 percent subangular chert gravel and 2 percent subangular sandstone cobbles; very strongly acid; clear smooth boundary.

2Bt3—33 to 41 inches; 80 percent strong brown (7.5YR 5/6) and 20 percent brown (7.5YR 5/3) clay; weak medium prismatic structure parting to moderate fine subangular blocky; firm; common very fine to medium roots; common prominent continuous light brown (7.5YR 6/4) and common distinct continuous strong brown (7.5YR 5/6) clay

films on faces of peds; few prominent discontinuous dark brown (7.5YR 3/2) manganese or iron-manganese stains on faces of peds; 10 percent subangular chert gravel; strongly acid; clear smooth boundary.

2Bt4—41 to 52 inches; yellowish red (5YR 4/6) clay; moderate medium prismatic structure parting to moderate medium angular blocky; firm; common very fine and fine roots throughout; common prominent continuous strong brown (7.5YR 5/6) and common faint continuous yellowish red (5YR 5/6) clay films on faces of peds; few prominent discontinuous dark brown (7.5YR 3/2) manganese or iron-manganese stains on faces of peds; 3 percent subangular chert gravel; neutral; clear smooth boundary.

2Bt5—52 to 58 inches; strong brown (7.5YR 5/6) clay; moderate medium prismatic structure parting to moderate fine subangular blocky; firm; common very fine and fine roots throughout; many prominent continuous clay films on faces of peds; very few prominent discontinuous dark brown (7.5YR 3/2) manganese or iron-manganese stains on faces of peds; common fine irregular light yellowish brown (2.5Y 6/4) masses of iron accumulation throughout; 10 percent subangular chert gravel; slightly alkaline; abrupt wavy boundary.

2R—58 inches; dolostone bedrock.

Range in Characteristics

Depth to bedrock: 40 to 60 inches

A horizon:

Color—value of 3 to 5 and chroma of 2 or 3

Texture—gravelly silt loam or very gravelly silt loam

E horizon:

Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 or 3

Texture—the gravelly to extremely gravelly analogs of silt loam or fine sandy loam

Bt horizon:

Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 3 to 6

Texture—the gravelly to extremely gravelly analogs of silt loam or loam

2Bt horizon:

Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 3 to 8

Texture—clay or gravelly clay

Racket Series

Depth class: Very deep

Drainage class: Well drained

Landform: Flood plains

Parent material: Loamy alluvium

Slope range: 0 to 3 percent

Taxonomic classification: Fine-loamy, mixed, superactive, mesic Cumulic Hapludolls

Typical Pedon

Racket silt loam, 0 to 3 percent slopes, frequently flooded, clayey substratum; UTM Zone 15; UTM coordinates 571570 meters Easting and 4265000 meters Northing:

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam, dark grayish brown (10YR 4/2) dry; weak medium granular structure; friable; many very fine roots throughout; 2 percent subangular chert gravel; neutral; clear smooth boundary.

Bw1—5 to 16 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine prismatic structure parting to weak very fine subangular blocky; friable; common very fine roots throughout; slightly acid; gradual smooth boundary.

Bw2—16 to 30 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; weak fine prismatic structure parting to weak fine subangular blocky; friable; common very fine roots throughout; 2 percent subangular chert gravel; slightly acid; clear wavy boundary.

2Bw3—30 to 41 inches; dark brown (10YR 3/3) extremely gravelly sandy clay loam, brown (10YR 4/3) dry; weak medium subangular blocky structure; firm; few very fine roots throughout; 65 percent subangular chert gravel; slightly acid; clear wavy boundary.

2Bw4—41 to 52 inches; brown (10YR 4/3) very gravelly sandy clay loam; moderate medium subangular blocky structure; firm; few very fine roots throughout; few fine rounded dark brown (7.5YR 3/2) masses of iron accumulation; 40 percent subangular chert gravel; slightly acid; clear wavy boundary.

2Bw5—52 to 60 inches; dark grayish brown (10YR 4/2) gravelly loam; moderate medium subangular blocky structure; firm; few very fine roots throughout; many medium irregular dark yellowish brown (10YR 4/6) masses of iron accumulation throughout; 30 percent subangular chert gravel; slightly acid; clear wavy boundary.

2Bw6—60 to 68 inches; light brownish gray (10YR 6/2) very gravelly clay loam; moderate medium and coarse subangular blocky structure; firm; few very

fine roots throughout; many medium and coarse irregular yellowish brown (10YR 5/6) masses of iron accumulation throughout; 35 percent subangular chert gravel and 15 percent subangular chert cobbles; slightly acid; clear wavy boundary.

3Bw7—68 to 80 inches; brown (10YR 5/3) very gravelly clay; moderate medium and coarse subangular blocky structure; very firm; few very fine roots throughout; many medium irregular strong brown (7.5YR 5/6) masses of iron accumulation throughout; 40 percent subangular chert gravel and 15 percent subangular chert cobbles; slightly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value and chroma of 2 or 3

Bw horizon:

Color—hue of 7.5YR or 10YR and chroma of 2 or 3

Texture—silt loam or silty clay loam

2Bw horizon:

Color—hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 2 to 6

Texture—loam, sandy clay loam, clay loam, or silty clay loam or the gravelly to extremely gravelly analogs of these textures

3Bw horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 or 4

Texture—gravelly clay, very gravelly clay, or extremely gravelly clay

Racoon Series

Depth class: Very deep

Drainage class: Poorly drained

Landform: Stream terraces

Parent material: Silty alluvium

Slope range: 0 to 2 percent

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Endoaqualfs

Typical Pedon

Racoon silt loam, 0 to 2 percent slopes, occasionally flooded; UTM Zone 15; UTM coordinates 617785 meters Easting and 4259860 meters Northing:

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; moderate fine granular structure; very

friable; many very fine and common fine roots; neutral; clear smooth boundary.

Eg1—6 to 15 inches; light brownish gray (10YR 6/2) silt loam; weak very fine subangular blocky structure; very friable; common fine roots; common fine prominent yellowish brown (10YR 5/6) irregularly shaped masses of iron accumulation; neutral; gradual smooth boundary.

Eg2—15 to 26 inches; light brownish gray (10YR 6/2) silt loam; weak very fine subangular blocky structure; very friable; few very fine roots; common faint light gray (10YR 7/2) clay depletions; common fine iron-manganese nodules with distinct boundaries; common fine prominent yellowish brown (10YR 5/6) irregularly shaped masses of iron accumulation; strongly acid; gradual smooth boundary.

Btg1—26 to 48 inches; grayish brown (10YR 5/2) silty clay loam; moderate fine subangular blocky structure; friable; few very fine roots; common distinct clay films on faces of peds; common faint light gray (10YR 7/2) clay depletions; common fine prominent yellowish brown (10YR 5/6) and few medium faint brown (10YR 5/3) irregularly shaped masses of iron accumulation; very strongly acid; clear smooth boundary.

Btg2—48 to 60 inches; grayish brown (10YR 5/2) silty clay loam; moderate medium subangular blocky structure; firm; common distinct clay films on faces of peds and a heavy accumulation at the base of the horizon; common faint light gray (10YR 7/2) clay depletions; many fine iron-manganese nodules with distinct boundaries; common fine prominent dark yellowish brown (10YR 4/6) and few fine prominent yellowish brown (10YR 5/6) irregularly shaped masses of iron accumulation; strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 4 to 6 and chroma of 2 or 3

Eg horizon:

Color—value of 4 to 7 and chroma of 1 or 2

Btg horizon:

Color—hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2

Texture—silt loam or silty clay loam

Cg horizon (if it occurs):

Color—hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2

Texture—silty clay

Rueter Series

Depth class: Very deep

Drainage class: Somewhat excessively drained

Landform: Uplands

Parent material: Gravelly colluvium (hillslope sediments) over residuum derived from dolostone

Slope range: 3 to 35 percent

Taxonomic classification: Loamy-skeletal, siliceous, active, mesic Typic Paleudalfs

Typical Pedon

Rueter very gravelly silt loam, 15 to 35 percent slopes, very stony; UTM Zone 15; UTM coordinates 577400 meters Easting and 4250110 meters Northing:

A—0 to 3 inches; dark grayish brown (10YR 4/2) very gravelly silt loam; 10 percent brown (10YR 5/3) mixings; weak very fine subangular blocky structure parting to moderate fine granular; very friable; many very fine and common medium and coarse roots throughout; common very fine and fine vesicular pores; 35 percent subrounded chert gravel; extremely acid; clear smooth boundary.

E—3 to 14 inches; brown (10YR 5/3) very gravelly silt loam; weak very fine subangular blocky structure; very friable; many fine and common very fine to coarse roots throughout; many very fine and fine vesicular pores; 45 percent subrounded chert gravel; very strongly acid; clear wavy boundary.

Bt1—14 to 25 inches; yellowish brown (10YR 5/4) extremely cobbly loam; weak very fine subangular blocky structure; friable; common very fine to medium roots between peds; few very fine and fine vesicular pores; few faint discontinuous clay films on faces of peds; 30 percent subrounded chert gravel and 30 percent subrounded chert cobbles; very strongly acid; clear wavy boundary.

Bt2—25 to 35 inches; yellowish brown (10YR 5/6) very gravelly loam; weak very fine subangular blocky structure; friable; common very fine and fine and few medium roots between peds; few very fine and fine vesicular pores; few faint discontinuous clay films on faces of peds; 40 percent subrounded chert gravel and 10 percent subrounded chert cobbles; very strongly acid; clear wavy boundary.

Bt3—35 to 45 inches; yellowish brown (10YR 5/6) very gravelly sandy clay loam; weak very fine subangular blocky structure; friable; few very fine to medium roots between peds; few very fine and fine vesicular pores; common faint discontinuous and few distinct discontinuous clay films on faces of peds; common fine irregular strong brown (7.5YR 5/6) masses of iron accumulation between

pedes; 40 percent subrounded chert gravel and 10 percent subrounded chert cobbles; very strongly acid; clear wavy boundary.

2Bt4—45 to 55 inches; 65 percent strong brown (7.5YR 5/6), 30 percent red (2.5YR 4/6), and 5 percent grayish brown (10YR 5/2) (relict) clay; moderate fine subangular blocky structure; firm; few very fine and fine roots between pedes; common faint discontinuous and few prominent discontinuous clay films on faces of pedes; 1 percent angular chert gravel; extremely acid; clear smooth boundary.

2Bt5—55 to 61 inches; 70 percent strong brown (7.5YR 5/6), 25 percent red (2.5YR 4/6), and 5 percent grayish brown (10YR 5/2) (relict) extremely cobbly clay; moderate fine subangular blocky structure; firm; few very fine and fine roots between pedes; common faint discontinuous and few prominent discontinuous clay films on faces of pedes; 80 percent subangular chert cobbles; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—value of 3 or 4 and chroma of 2 or 3

Texture—gravelly silt loam or very gravelly silt loam

E horizon:

Color—value of 4 to 6 and chroma of 3 or 4

Texture—the very gravelly or extremely gravelly or very cobbly or extremely cobbly analogs of silt loam or loam

Bt horizon:

Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 3 to 6

Texture—the very gravelly or extremely gravelly or very cobbly or extremely cobbly analogs of silt loam, loam, clay loam, or sandy clay loam

2Bt horizon:

Color—hue of 2.5YR to 10YR, value of 4 or 5, and chroma of 2 to 8 (chroma of 2 is relict)

Texture—clay, gravelly clay, very gravelly clay, extremely gravelly clay, very cobbly clay, or extremely cobbly clay

Sacville Series

Depth class: Very deep

Drainage class: Poorly drained

Landform: Toeslopes

Parent material: Colluvium (hillslope sediments)

Slope range: 2 to 5 percent

Taxonomic classification: Fine, smectitic, mesic Vertic Argiaquolls

Typical Pedon

Sacville silt loam, 2 to 5 percent slopes; UTM Zone 15; UTM coordinates 549740 meters Easting and 4220660 meters Northing:

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; many fine and medium roots throughout; common fine and medium vesicular and tubular pores; strongly acid; abrupt smooth boundary.

A—7 to 12 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; weak fine granular structure; friable; many very fine and fine roots throughout; common very fine and fine vesicular and tubular pores; strongly acid; clear smooth boundary.

Eg—12 to 15 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; friable; common fine and medium roots throughout; common fine and medium vesicular and tubular pores; few distinct discontinuous dark brown (10YR 3/3) organic coats on faces of pedes and in pores; strongly acid; clear smooth boundary.

Btg1—15 to 26 inches; dark grayish brown (10YR 4/2) silty clay loam; moderate fine subangular blocky structure; firm; common very fine and fine roots throughout; common very fine and fine vesicular and tubular pores; few distinct discontinuous dark brown (10YR 3/3) organic coats on faces of pedes and in pores; very few distinct discontinuous dark gray (10YR 4/1) clay films on faces of pedes and in pores; common fine irregular yellowish brown (10YR 5/6) masses of iron accumulation throughout; very strongly acid; clear smooth boundary.

Btg2—26 to 43 inches; dark grayish brown (10YR 4/2) silty clay; moderate fine and medium subangular blocky structure; firm; common very fine and fine roots throughout; common fine vesicular and tubular pores; few distinct discontinuous dark brown (10YR 3/3) organic coats on faces of pedes and in pores; few distinct discontinuous dark gray (10YR 4/1) clay films on faces of pedes and in pores; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation; common fine yellowish brown (10YR 5/6) masses of iron accumulation throughout; strongly acid; clear smooth boundary.

2Btg3—43 to 65 inches; dark gray (10YR 4/1) silty clay; moderate fine subangular blocky structure;

firm; common very fine and fine vesicular and tubular pores; few distinct continuous gray (10YR 5/1) clay films on faces of peds; common fine irregular black (10YR 2/1) masses of iron-manganese throughout; common fine and medium irregular yellowish brown (10YR 5/8) masses of iron accumulation throughout; 2 percent subangular chert gravel; neutral; clear smooth boundary.

2Btg4—65 to 80 inches; dark grayish brown (2.5Y 4/2) gravelly silty clay; weak fine and medium subangular blocky structure; firm; common very fine and fine vesicular and tubular pores; few distinct continuous gray (10YR 5/1) clay films on faces of peds; few fine irregular black (10YR 2/1) masses of iron-manganese accumulation throughout; common fine and medium irregular yellowish brown (10YR 5/6) masses of iron accumulation throughout; 15 percent subangular chert gravel; slightly alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

Thickness of the mollic epipedon: 10 to 24 inches

Ap and A horizons:

Color—value of 2 or 3 and chroma of 1 or 2

Eg horizon:

Color—value of 4 or 5

Btg horizon:

Color—value of 4 or 5 and chroma of 1 or 2

Texture—silty clay loam or silty clay

2Btg horizon (if it occurs):

Color—hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2

Texture—silty clay loam, silty clay, gravelly silty clay loam, or gravelly silty clay

Sarpy Series

Depth class: Very deep

Drainage class: Excessively drained

Landform: Flood plains

Parent material: Sandy alluvium

Slope range: 0 to 2 percent

Taxonomic classification: Mixed, mesic Typic Udipsamments

Typical Pedon

Sarpy fine sand, 0 to 2 percent slopes, frequently flooded; UTM Zone 15; UTM coordinates 611900 meters Easting and 4284630 meters Northing:

A—0 to 1 inch; dark grayish brown (10YR 4/2) fine sand; weak very fine granular structure; very friable; common medium and many fine and very fine roots; strong effervescence; slightly alkaline; abrupt smooth boundary.

C—1 to 60 inches; stratified brown (10YR 5/3) and grayish brown (10YR 5/2) fine sand; single grain; loose; common medium, fine, and very fine roots; strong effervescence; moderately alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

A horizon:

Color—value of 4 or 5 and chroma of 2 or 3

C horizon:

Color—value of 4 or 5 and chroma of 2 or 3

Texture—fine sand or loamy fine sand

Tanglenook Series

Depth class: Very deep

Drainage class: Poorly drained

Landform: Stream terraces

Parent material: Clayey alluvium

Slope range: 0 to 2 percent

Taxonomic classification: Fine, mixed, superactive, mesic Typic Argiaquolls

Typical Pedon

Tanglenook silty clay loam, 0 to 2 percent slopes, occasionally flooded; UTM Zone 15; UTM coordinates 585860 meters Easting and 4261440 meters Northing:

Ap—0 to 7 inches; very dark grayish brown (10YR 3/2) silty clay loam, grayish brown (10YR 5/2) dry; weak fine granular structure; firm; few very fine and fine roots; slightly acid; abrupt smooth boundary.

A—7 to 16 inches; very dark grayish brown (10YR 3/2) silty clay, grayish brown (10YR 5/2) dry; weak fine subangular blocky structure; firm; few very fine and fine roots; very few faint discontinuous clay films on faces of peds; very few faint discontinuous manganese or iron-manganese stains; few fine irregular strong brown (7.5YR 5/6) and brown (7.5YR 5/4) masses of iron accumulation throughout; moderately acid; clear wavy boundary.

Bt—16 to 29 inches; very dark grayish brown (10YR 3/2) silty clay; moderate medium subangular blocky structure; firm; few very fine roots; few distinct discontinuous clay films on faces of peds; few distinct discontinuous clay depletions on faces of peds; common fine irregular strong brown

(7.5YR 5/6) and brownish yellow (10YR 6/6) masses of iron accumulation throughout; strongly acid; clear wavy boundary.

Btg1—29 to 53 inches; gray (10YR 5/1) silty clay; moderate coarse subangular blocky structure; firm; few distinct discontinuous clay films on faces of peds; few fine irregular yellowish brown (10YR 5/6) masses of iron accumulation throughout; strongly acid; clear wavy boundary.

Btg2—53 to 60 inches; gray (5Y 5/1) silty clay; weak fine subangular blocky structure; firm; few prominent discontinuous black (10YR 2/1) organic coats on faces of peds; few distinct discontinuous clay films on faces of peds; few fine irregular light yellowish brown (10YR 6/4) masses of iron accumulation throughout; moderately acid.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap horizon:

Color—value of 2 or 3 and chroma of 1 or 2

A horizon:

Color—value of 2 or 3 and chroma of 1 or 2

Texture—silty clay loam or silty clay

Bt horizon:

Color—value of 2 or 3 and chroma of 1 or 2

Texture—silty clay loam or silty clay

Btg horizon:

Color—hue of 10YR to 5Y, value of 4 or 5, and chroma of 1 or 2

Texture—silty clay loam, silty clay, or clay

Udorthents

Depth class: Very deep

Drainage class: Moderately well drained

Landform: Uplands

Parent material: Highly disturbed clayey residuum derived from dolostone mixed with displaced dolostone rock fragments

Slope range: 3 to 15 percent

Taxonomic classification: Clayey-skeletal, mixed, active, mesic Typic Udorthents

Typical Pedon

Udorthents, in an area of Urban land-Udorthents complex, 3 to 15 percent slopes; UTM Zone 15; UTM coordinates 570870 meters Easting and 4268040 meters Northing:

C1—0 to 10 inches; 80 percent reddish brown (5YR 4/4) and 20 percent yellowish brown (10YR 5/6) very bouldery clay; moderate fine subangular blocky structure (relict); 10 percent angular dolomite gravel, 15 percent angular dolomite flagstones, and 20 percent angular dolomite boulders; neutral; gradual smooth boundary.

C2—10 to 21 inches; 50 percent brownish yellow (10YR 6/6), 40 percent yellowish brown (10YR 5/4), and 10 percent yellowish brown (10YR 5/6) very bouldery silty clay; moderate fine subangular blocky structure (relict); 20 percent angular dolomite gravel, 10 percent angular dolomite flagstones, and 15 percent angular dolomite boulders; slightly alkaline; gradual smooth boundary.

C3—21 to 31 inches; 50 percent yellowish brown (10YR 5/6), 40 percent yellowish brown (10YR 5/4), and 10 percent light gray (10YR 7/2) very bouldery clay; weak fine subangular blocky structure (relict); 10 percent angular dolomite gravel, 5 percent angular dolomite flagstones, and 25 percent angular dolomite boulders; slightly alkaline; gradual smooth boundary.

C4—31 to 40 inches; 40 percent yellowish brown (10YR 5/6), 30 percent yellowish brown (10YR 5/4), and 30 percent brown (10YR 5/3) very bouldery silty clay; weak fine subangular blocky structure (relict); 10 percent angular dolomite gravel, 5 percent angular dolomite flagstones, and 25 percent angular dolomite boulders; slightly alkaline; gradual smooth boundary.

C5—40 to 49 inches; 40 percent yellowish brown (10YR 5/6), 30 percent yellowish red (5YR 4/6), and 30 percent grayish brown (10YR 5/2) very bouldery clay; weak fine subangular blocky structure (relict); 10 percent angular dolomite gravel, 5 percent angular dolomite flagstones, and 35 percent angular dolomite boulders; slightly alkaline; gradual smooth boundary.

C6—49 to 61 inches; 80 percent yellowish brown (10YR 5/6), 15 percent brown (10YR 5/3), and 5 percent yellowish red (5YR 4/6) very bouldery clay; weak fine subangular blocky structure (relict); 10 percent angular dolomite gravel, 5 percent angular dolomite flagstones, and 35 percent angular dolomite boulders; slightly alkaline; gradual smooth boundary.

C7—60 to 71 inches; 45 percent yellowish brown (10YR 5/6), 45 percent strong brown (7.5YR 5/6), and 10 percent light gray (10YR 7/2) very bouldery clay; weak fine subangular blocky

structure (relict); 10 percent angular dolomite gravel, 5 percent angular dolomite flagstones, and 35 percent angular dolomite boulders; slightly alkaline; abrupt smooth boundary.

R—71 inches; dolostone bedrock.

Range in Characteristics

Depth to bedrock: 60 to 80 inches

C horizon:

Color—hue of 5YR to 10YR, value of 4 to 7, and chroma of 2 to 6

Texture—very bouldery silty clay loam, clay loam, silty clay, or clay

Waldron Series

Depth class: Very deep

Drainage class: Somewhat poorly drained

Landform: Flood plains

Parent material: Clayey alluvium

Slope range: 0 to 2 percent

Taxonomic classification: Fine, smectitic, calcareous, mesic Aeric Fluvaquents

Typical Pedon

Waldron silty clay loam, 0 to 2 percent slopes, occasionally flooded; UTM Zone 15; UTM coordinates 568550 meters Easting and 4273730 meters Northing:

Ap1—0 to 4 inches; very dark grayish brown (10YR 3/2) silty clay loam; weak very fine granular structure; friable; common very fine roots throughout; common very fine vesicular pores; slightly effervescent; slightly alkaline; clear smooth boundary.

Ap2—4 to 14 inches; very dark grayish brown (10YR 3/2) silty clay; weak fine prismatic structure; firm; common very fine roots throughout; common very fine vesicular pores; slightly effervescent; slightly alkaline; clear smooth boundary.

Cg1—14 to 21 inches; stratified, dark grayish brown (10YR 4/2) silt loam and silty clay; firm; common very fine roots throughout; common very fine vesicular pores; few distinct discontinuous pressure faces on faces of peds; few fine irregular brown (7.5YR 4/4) masses of iron accumulation throughout; slightly effervescent; slightly alkaline; abrupt smooth boundary.

Cg2—21 to 33 inches; stratified, dark grayish brown (10YR 4/2) silty clay; firm; common very fine roots

throughout; common very fine vesicular pores; few distinct discontinuous pressure faces on faces of peds; few thin platelike reddish brown (5YR 4/4) masses of iron accumulation at the top of the horizon and few fine dendritic reddish brown (5YR 4/4) masses of iron accumulation throughout; slightly effervescent; slightly alkaline; abrupt smooth boundary.

Cg3—33 to 45 inches; stratified, dark grayish brown (10YR 4/2) silt loam and silty clay; firm; common very fine roots throughout; common very fine vesicular pores; few distinct discontinuous pressure faces on faces of peds; few fine irregular brown (7.5YR 4/4) masses of iron accumulation throughout; slightly effervescent; slightly alkaline; abrupt smooth boundary.

Cg4—45 to 57 inches; stratified, 50 percent dark grayish brown (10YR 4/2) and 50 percent grayish brown (10YR 5/2) silty clay; firm; common very fine vesicular pores; few distinct discontinuous pressure faces; few fine dendritic reddish brown (5YR 4/4) and few fine irregular reddish brown (5YR 4/4) masses of iron accumulation throughout; slightly effervescent; slightly alkaline; abrupt smooth boundary.

2C—57 to 80 inches; brown (10YR 5/3) silt loam; massive; friable; few fine irregular reddish brown (5YR 5/4) masses of iron accumulation throughout; strongly effervescent; moderately alkaline.

Range in Characteristics

Depth to bedrock: More than 60 inches

Ap1 horizon:

Color—chroma of 1 or 2

Ap2 horizon:

Color—chroma of 1 or 2

Texture—silty clay loam or silty clay

Cg horizon:

Color—value of 3 to 5 and chroma of 1 to 3

Texture—silt loam, silty clay loam, or silty clay

2C horizon (if it occurs):

Color—value of 4 or 5 and chroma of 3 or 4

Texture—silt loam or silty clay loam

Wrengart Series

Depth class: Very deep

Drainage class: Moderately well drained

Landform: Uplands

Parent material: Loess over residuum derived from cherty dolostone

Slope range: 5 to 20 percent

Taxonomic classification: Fine-silty, mixed, active, mesic Fragic Oxyaquic Hapludalfs

Typical Pedon

Wrengart silt loam, 9 to 14 percent slopes, bedrock substratum; UTM Zone 15; UTM coordinates 569730 meters Easting and 4266210 meters Northing:

- Ap—0 to 7 inches; brown (10YR 4/3) silt loam; moderate fine granular structure; friable; many very fine and fine roots between peds; common very fine low-continuity vesicular pores; neutral; clear smooth boundary.
- Bt1—7 to 16 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; many very fine and fine roots between peds; common very fine low-continuity vesicular pores; common distinct discontinuous clay films on faces of peds; neutral; clear smooth boundary.
- Bt2—16 to 22 inches; yellowish brown (10YR 5/6) silty clay loam; moderate fine prismatic structure parting to moderate fine subangular blocky; firm; common very fine and fine roots between peds; common very fine low-continuity vesicular pores; few distinct discontinuous pale brown (10YR 6/3) silt coats on faces of peds; many distinct discontinuous clay films on faces of peds; common fine and medium irregular pale brown (10YR 6/3) masses of iron accumulation throughout; strongly acid; clear smooth boundary.
- 2Btx1—22 to 30 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium prismatic structure parting to weak medium subangular blocky; firm; 30 percent brittleness; common very fine and fine roots between peds; common very fine low-continuity vesicular pores; common distinct discontinuous clay films on faces of peds; common grayish brown (10YR 5/2) iron depletions; common fine and medium irregular dark yellowish brown (10YR 3/6) and few fine and medium irregular dark brown (7.5YR 3/2) masses of iron-manganese accumulation throughout; very strongly acid; clear smooth boundary.
- 2Btx2—30 to 41 inches; dark yellowish brown (10YR 4/4) silt loam; moderate coarse prismatic

structure; very firm; 45 percent brittleness; common very fine and fine roots between peds; common very fine low-continuity vesicular pores; common distinct discontinuous clay films; common medium grayish brown (10YR 5/2) cylindrical iron depletions between peds; common irregular strong brown (7.5YR 5/8) masses of iron-manganese accumulation; 2 percent subangular chert gravel; very strongly acid; clear smooth boundary.

- 3Btx3—41 to 50 inches; brownish yellow (10YR 6/6) very gravelly silt loam; weak fine subangular blocky structure; very firm; 40 percent brittleness; few very fine roots matted around stones; common very fine low-continuity vesicular pores; few distinct discontinuous clay films on faces of peds; very few distinct discontinuous dark brown (7.5YR 3/2) manganese or iron-manganese stains on faces of peds; 55 percent angular chert gravel; slightly acid; clear smooth boundary.
- 4Bt1—50 to 62 inches; yellowish brown (10YR 5/6) gravelly clay; moderate fine angular blocky structure; firm; few very fine roots between peds; many prominent continuous clay films on faces of peds; common fine irregular dark brown (7.5YR 3/2) masses of iron-manganese accumulation throughout; 15 percent angular chert gravel; neutral; clear wavy boundary.
- 4Bt2—62 to 77 inches; yellowish red (5YR 5/6) very gravelly clay; moderate fine and medium angular blocky structure; firm; few very fine roots matted around stones; many distinct continuous clay films on faces of peds; 50 percent angular chert gravel and 5 percent angular chert cobbles; slightly alkaline; clear wavy boundary.
- 4R—77 inches; dolostone bedrock.

Range in Characteristics

Depth to bedrock: 60 to 80 inches

Depth to brittle layer: 20 to 40 inches

Ap or A horizon:

Color—value of 3 or 4 and chroma of 2 or 3

Bt horizon:

Color—hue of 7.5YR or 10YR and value and chroma of 4 to 6

2Btx horizon:

Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 2 to 6

Texture—silt loam, silty clay loam, gravelly silt loam, or gravelly silty clay loam

3Btx horizon:

Color—hue of 5YR to 10YR, value of 4 to 6, and
chroma of 2 to 6

Texture—very gravelly silt loam or extremely
gravelly silt loam

4Bt horizon:

Color—hue of 5YR to 10YR, value of 4 or 5, and
chroma of 4 to 6

Texture—silty clay or clay or the gravelly or very
gravelly analogs of these textures

Formation of the Soils

Soil forms through processes that act on deposited or accumulated geologic material. The characteristics of the soil at any given point are determined by the physical and mineralogical composition of the parent material; the climate under which the soil material accumulated; the plant and animal life on and in the soil; the relief, or lay of the land; and the length of time that the forces of soil formation have acted on the soil material. Human activities also affect soil formation.

Climate and plant and animal life are active factors of soil formation. They act on the parent material that has accumulated through the weathering of rocks and slowly change it to a natural body that has genetically related horizons. Relief conditions the effects of climate and plant and animal life. The parent material affects the kind of soil profile that forms and in extreme cases determines it almost entirely. Finally, time is needed to change the parent material into a soil that has distinct horizons. Generally, a long time is required for the formation of distinct horizons.

Parent Material

Parent material is the unconsolidated mass in which a soil forms. The accumulation or deposition of this material is the first step in the development of a soil profile. The characteristics of this material affect the chemical and mineralogical composition of the soil. The parent materials in Cole County are alluvium (material deposited by water), colluvium (material transported by mass movement), loess (silty material deposited by the wind), and residuum (material weathered from bedrock).

Most of the residuum in Cole County is derived from dolostone and sandstone formations of the Ordovician System and from scattered pockets formed from sandstone, clay, and clastic rocks of the Pennsylvanian System (Howe and Koenig, 1961).

The youngest residual parent materials in the county are the scattered pockets of Pennsylvanian clays and sandstone and the associated chert of unknown origin. These materials lie unconformably on eroded surfaces of the Ordovician System, primarily those of Jefferson City dolostone. Ocie soils formed in

thin layers of this geologic material overlying dolostone.

Most of the exposed dolostone in Cole County is from the Jefferson City Formation. The underlying Roubidoux and Gasconade Formations contain more chert and interbedded sandstone and sandy dolostone than the Jefferson City Formation and are less extensive, occurring mainly along the Osage River. Gatewood and Moko soils formed mainly in the less cherty, argillaceous residuum of the Jefferson City Formation, and Rueter soils formed in the more cherty, loamy residuum derived from the Roubidoux Formation. Bardley and Niangua soils formed in the argillaceous residuum of the Gasconade Formation in some areas adjacent to major streams.

Loess probably once covered all of the survey area. It was deposited during the most recent postglacial period. The sources of this material were the flood plains along the Missouri River and its tributaries. Choked with sediment deposited by glacial meltwater and nearly barren in the still-frigid climate, these valleys were the focus of violent dust storms. The resulting deposits blanketed the landscape to varying depths. These deposits were thickest on the river hills and thinner with increasing distance from the source. Erosion removed the loess at widely varying rates. It apparently kept pace with deposition on the steep, sun-warmed south and west exposures, where stripping has been complete. North and east aspects, in contrast, remained frozen longer and retained an appreciable amount of the loess, as did ridgetops, where erosion rates are minimal. The zone of thickest loess occurs on the hillsides and ridges adjacent to the Missouri River, where as much as 10 feet of loess remains. Stable landforms farther from the Missouri River have only 20 to 40 inches of loess.

Menfro soils formed entirely in loess. The upper part of Cotton, Gravois, Gunlock, Maplewood, and Wrengart soils formed in loess. Harvester soils formed primarily in loess, but they have been significantly disturbed by human activities.

The pattern of loess distribution indicates that no major alterations of landforms have occurred since the loess was deposited (Brown, 1981). Subsequent

geologic erosion has had little effect on the landscape, though it has removed some surface material, mainly loess.

The soils on the flood plains in Cole County formed in alluvial deposits ranging in thickness from about 5 feet to more than 30 feet. These soils differ widely in texture and chemical composition, reflecting a diversity of origin, varying floodwater velocity, and various kinds of primary source material.

The soils on the Missouri River flood plains, which have a vast watershed as their source of material, are rich in unweathered minerals. Waldron soils formed in clayey deposits in slackwater areas. Haynie soils occur on the higher parts of the bottom land and have loamy textures. Leta soils formed in areas intermediate between the Haynie and Waldron soils, where the clayey alluvium was deposited over the loamy alluvium.

Sarpy soils formed in sandy material deposited by swift currents, mainly in areas that are downstream from holes where the sandy substratum was scoured up onto the surface by turbulent concentrated floodwaters. Blake soils formed in silty sediments in gentle swales that hold water for significant periods.

The flood plain along the Moreau River formed mainly in silty alluvium. The material in tributary streams is progressively coarser in texture upstream. The gravelly Cedargap soils are in narrow upstream reaches, and the silty Jamesfin soils dominate the broader flood plains farther downstream. Racket soils occur between these two soils. The abundance of loess as a source material and predictable decreases in stream velocity and gradient along descending watercourses cause this gradation.

Climate

Climate has been an important factor in soil formation. Geologic erosion, the kinds of plant and animal life, and the parent materials of the soils have been directly affected by the climate.

Soil formation was greatly affected by climatic changes. Thousands of years of cold temperatures alternating with moderate temperatures apparently produced the glaciers that moved into northern Missouri (Buol and others, 1980). The advent of warmer weather patterns caused the glaciers to recede. Meltwaters made the atmosphere more humid and volatile. The unprotected bedload from the glacier was easily blown by relentless winds generated by the climate change. The windblown material was carried to the southeast, gradually depositing the loess mantle that now covers much of the county. The climate at

that time was cool and moist, and the native vegetation was woodland. A subsequent period of significantly lower rainfall caused the development of small prairies. The present climate favors the encroachment of forests; prior to settlement, however, wildfire played a crucial role in maintaining prairies by killing woody seedlings intruding in the grasslands and stimulating the growth of fire-tolerant warm-season grasses.

In addition to influencing native vegetation, the climate has a direct physical influence on the soil. The present subhumid midcontinental climate has distinct temperature fluctuations and predictable rainfall distribution with the seasons. Freeze-thaw cycles are very efficient at gradual disintegration of exposed bedrock. Any crevice that is large enough for water to enter is subject to more fracture when the water freezes. South-facing slopes are subject to more of these cycles because sunlight warms them more during the day than the corresponding north-facing slopes.

Clay-sized particles form throughout the soil through mechanical weathering and through synthesis from weathering of primary minerals. Moisture deficits in the summer contribute to cracking, which is instrumental in the development of argillic horizons in the subsoil. Rainfall percolating through the soil disperses clay-sized particles in the upper layers of the soil, which move down into the cracks along with the percolating water. As the water is absorbed into the dry soil along the cracks, the clay particles are left on the surface of the cracks, creating clay films that define the aggregation of the soil and gradually increase the content of clay. Eventually, much of the clay leaves the surface layer and migrates into the subsoil by this mechanism. The degree and depth of this translocation are indicators of the age of the soil. Most of the upland soils in Cole County show evidence of this clay movement.

Surplus moisture in spring and late fall creates zones of saturation in some soils and influences the color of the subsoil. In general, gray colors are indicative of wetness because of reduction of iron in the soil. Conversely, brown or red colors are associated with oxidation in the soil and indicate free movement of both air and water through the soil. Some soils (such as the Moniteau and Racoon series) have a water table that is continuous beneath their upper boundary. Other soils (such as the Gravois series) have noncontinuous zones of saturation that occur because of subsoil horizons that hold the water up temporarily (referred to as a perched water table). Some soils that are saturated for long periods support

indicator plant species, such as smartweed, various sedges, silver maple, or cottonwood. This saturation affects the suitability of the soils for some agricultural crops that are sensitive to wetness, such as alfalfa. The effective length of the growing season in cultivated areas is delayed by the seasonal wetness.

The influence of the regional climate on soil formation is modified in many places by local conditions. For example, the Moko soils on south- and west-facing slopes formed under the influence of a microclimate that is warmer and less humid than that on north- and east-facing slopes.

Living Organisms

The living organisms that influence soil formation include plants, burrowing animals, worms, insects, bacteria, and fungi in the soil. Among the soil properties affected are organic matter and nitrogen content, reaction, color, structure, and porosity.

The composition of plant communities is variable depending on the climate, depth, fertility level, available water capacity, and drainage class of the soil. Indigenous organic matter at the surface of soils that formed under forest vegetation is derived mainly from leaves, twigs, and logs, which decompose at the surface. These materials tend to be acidic. The resulting forest soils have a thin, dark surface layer and commonly have a leached subsurface layer. Menfro soils are examples of soils that formed under these conditions.

In contrast, the natural organic matter at the surface of soils that formed under prairie grasses is derived mainly from the decay of grasses and annual and biennial forbs. These plants are very effective in the uptake of bases, have a greater proportion of rootmass than forest vegetation, and have a comparatively short lifespan, resulting in a surface layer that is darker, thicker, and less acidic than that in soils that formed under forest vegetation.

The soils that formed under grasses in Cole County are not extensive. Because the rainfall was adequate for forest vegetation, prairie grasses were limited to areas that were too wet or too dry for trees. Hacreek soils on bottom land and Moko soils in grassy upland glades formed on such sites. Some areas have been dominated by grass vegetation periodically but not for long enough periods to leave a permanent signature, such as a dark surface layer.

Worms, insects, burrowing animals, large animals, and humans all affect and disturb the soil. Earthworms pass through their bodies as much as 15 tons of dry earth per acre each year (Buckman and Brady, 1972).

The digestive enzymes and grinding action contribute significantly to the mixing and aeration of the soil, the breakdown of mineral and organic material, and the increased availability of plant nutrients. Other higher animals affect the soil primarily by mechanical mixing. Actinomycetes, bacteria, and fungi, however, contribute more than animals to the formation of soils, and under favorable conditions they may comprise as much as 2 tons of mass in the plow layer of each acre. These micro-organisms cause rotting of organic material, improve tilth, and fix nitrogen in the soils. The population of soil organisms is directly related to the rate of decomposition of organic material in the soil. Differences in vegetation influence the kinds and populations of organisms and their activity.

Since the time of settlement, human activities have affected soil formation. Some of these effects have been drastic. Removal of trees and intensive cultivation and overgrazing have resulted in severe erosion in many areas. All of the productive topsoil has been lost in some places. Much of the sloping cropland and some poorly managed pastures are still eroding at a rate in excess of what is considered tolerable for sustained production. Urban and residential areas have covered some prime farmland. In addition to displacing productive land, these urban areas increase the rate of runoff because of roofs, roads, parking lots, and other surfaces that prevent water infiltration. Poor siting and design of sewage systems and other waste disposal systems have degraded water quality in some areas.

Relief

Relief refers to the degree of variance in the surface of the earth, the changes in elevation, and the nature of the slopes between one elevation and another. It is an important factor in determining the pattern and distribution of soils on a landscape because of its influence on drainage, runoff, erosion, and microclimate.

Relief results from natural forces that create unevenness in the land surface. In Cole County the streams that carry runoff from the flanks of the Ozark uplift have incised through dolostone and sandstone bedrock, creating entrenched and meandering stream valleys. Smaller streams branch toward the uplands, dissecting the side slopes that intervene between long interconnected ridgetops.

The amount of water entering and passing through the soil depends upon the steepness and shape of the slope, the permeability of the soil material, and the amount and intensity of rainfall. In steep areas, runoff

is rapid and very little water passes through the soil. Consequently, distinct horizons are slow to develop. The removal of weathered products by geologic erosion may nearly equal the rate of accumulation on some sites. Moko soils formed under these conditions. In gently sloping or nearly level upland areas, runoff is slower and more of the water passes through the soil. As a result, these soils show maximum profile development. Because of runoff from adjacent hillsides, footslope areas receive an extra increment of water in addition to direct rainfall. Hartville soils are examples of soils on footslopes.

Concave areas are generally wetter than other areas because as runoff converges in these areas, the waterflow is concentrated and the volume that goes over and through the soil is greater. Convex areas are drier because the divergent waterflow pattern disperses the water, resulting in a smaller volume going over and through the soil.

South-facing slopes receive more direct sunlight than north-facing slopes. This factor contributes to faster warming and drying of the soil and differences in native vegetation. It also results in more freeze-thaw cycles than those on the corresponding north-facing slopes, which tend to stay frozen longer. The more direct sunlight also makes these south-facing sites somewhat drier.

Time

The degree of profile development reflects the length of time the parent material has been in place and subject to weathering processes. Young soils show very little profile development or horizon differentiation. Old soils show the effects of the movement of clay and leaching and have distinct horizons that are readily observable.

The youngest soils in Cole County are those that formed in alluvium. Sarpy soils, for example, do not show any profile development. Alluvial material is added to the surface nearly every year. Deible, Freeburg, Hacreek, Jemerson, Tanglenook, and Racoon soils are the oldest alluvial soils. They are on high flood plains and show moderate profile development.

The oldest soils in the survey area formed in cherty residuum on upland side slopes. Long periods of time were necessary for the weathering of the bedrock matrix and for the accumulation of cherty residuum in which Bardley, Gatewood, and Rueter soils formed.

Many areas reflect dual chronologies. In Cotton, Gravois, Gunlock, Wrengart, and Maplewood soils, for example, the underlying material is older than the material above it and has strongly expressed horizons. This older material is covered by younger loess, which has in turn developed horizons of its own.

References

American Association of State Highway and Transportation Officials (AASHTO). 2000. Standard specifications for transportation materials and methods of sampling and testing. 20th edition, 2 volumes.

American Society for Testing and Materials (ASTM). 2001. Standard classification of soils for engineering purposes. ASTM Standard D 2487-00.

Beilmann, A.P., and L.G. Brenner. 1951. The recent intrusion of forests in the Ozarks. *Annals of the Missouri Botanical Garden*, volume 38.

Brandle, J.R., D.L. Hintz, and J.W. Sturrock (editors). 1988. Windbreak technology.

Brown, Burton L. 1981. Soil survey of St. Francois County, Missouri. U.S. Department of Agriculture, Soil Conservation Service and Forest Service, in cooperation with Missouri Agricultural Experiment Station.

Buckman, Harry O., and Nyle C. Brady. 1972. The nature and properties of soils. 7th edition.

Buol, S.W., F.D. Hole, and R.J. McCracken. 1980. Soil genesis and classification. 3rd edition.

Goodspeed Publishing Company. 1889. History of Cole, Moniteau, Benton, Miller, Maries, and Osage Counties. Reproduced (1978) by Southern Historical Press.

Hansen, Mark H. 1991. Timber resource of Missouri's riverborder. U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station Resource Bulletin NC-118.

Howe, W.B., and J.W. Koenig. 1961. The stratigraphic succession in Missouri. *Missouri Geological Survey and Water Resources*.

Jefferson City Chamber of Commerce. 2000. List of major employers.

Missouri Agricultural Statistics Service. 2000. Missouri farm facts.

Missouri Department of Conservation. 1997. Missouri's conservation atlas: A guide to exploring your conservation lands.

Oesch, R.D. 1995. Missouri naiades: A guide to the mussels of Missouri. Missouri Department of Conservation.

Robinette, G.O. 1972. Plants/people/and environmental quality. U.S. Department of the Interior, National Park Service.

Scholten, H. 1988. Farmstead shelterbelts: Protection against wind and snow. University of Minnesota Publication CD-BU-0468.

Schroeder, W.A. 1982. Presettlement prairie of Missouri. Missouri Department of Conservation, Natural History Series, number 2.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1998. Keys to soil taxonomy. 8th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

State of Missouri. 2000. Official manual of the State of Missouri.

Thom, R.H., and J.H. Wilson. 1983. The natural divisions of Missouri. *Natural Areas Journal* 3(2): 44-51.

United States Department of Agriculture. 1961. Land capability classification. Soil Conservation Service. U.S. Department of Agriculture Handbook 210.

United States Department of Agriculture. 1997. National resources inventory.

Wallace, D.C., W.A. Geyer, and J.P. Dwyer. 2000. Waterbreaks: Managed trees for the flood plain. U.S. Department of Agriculture, Natural Resources Conservation Service and Forest Service. Agroforestry Notes.

Yatskievych, G. 1999. Steyermark's flora of Missouri. Volume 1. Missouri Department of Conservation.

Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon.

Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Area reclaim (in tables). An area difficult to reclaim after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed

as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blue hole. A deep hole in the ground, filled with water, created by a levee break as a result of flooding.

Board foot. A unit of measure of the wood in lumber, logs, or trees. The amount of wood in a board 1 foot wide, 1 foot long, and 1 inch thick before finishing.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena. A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Cement rock. Shaly limestone used in the manufacture of cement.

Channeled. Refers to a drainage area in which natural meandering or repeated branching and convergence of a streambed have created deeply incised cuts, either active or abandoned, in alluvial material.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clayey soil. Silty clay, sandy clay, or clay.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Clearcut. A method of forest harvesting that removes the entire stand of trees in one cutting. Reproduction is achieved artificially or by natural seeding from the adjacent stands.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

Codominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above but comparatively little from the sides.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.

Commercial forest. Forestland capable of producing 20 cubic feet or more per acre per year at the culmination of the mean annual increment.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping.

The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."

Consolidated sandstone. Sandstone that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry, are not easily crushed, and cannot be textured by the usual field method.

Consolidated shale. Shale that disperses within a few hours when fragments are placed in water. The fragments are extremely hard or very hard when dry and are not easily crushed.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing

crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Cross-slope farming. Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Culmination of the mean annual increment (CMAI).

The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deep to water (in tables). Deep to permanent water during the dry season.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Depth to bedrock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth,

generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Dominant trees. Trees whose crowns form the general level of the forest canopy and that receive full light from above and from the sides.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. An area of ground at a lower elevation than the surrounding ground and in which water collects and is drained to a closed depression or lake or to a drainageway at a lower elevation. A drainageway may or may not have distinctly incised channels at its upper reaches or throughout its course.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Droughty (in tables). The soil holds an insufficient amount of water for plants during dry periods.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erodes easily (in tables). The soil is easily eroded by water.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Even aged. Refers to a stand of trees in which only small differences in age occur between individual trees. A range of 20 years is allowed.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fast intake (in tables). The rapid movement of water into the soil.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the oven-dry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity*, *normal moisture capacity*, or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to pack (in tables). Difficult to compact using regular earthwork construction equipment.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Heavy metal. Inorganic substances that are solid at ordinary temperatures and are not soluble in water. They form oxides and hydroxides that are basic. Examples are copper, iron, cadmium, zinc, manganese, lead, and arsenic.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Highly erodible (in tables). The soil has a wind erodibility index greater than 8 and is very susceptible to erosion by water.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent

subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally,

material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasesers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasesers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Infrequent flooding (in tables). Flooding occurs at an interval that limits riparian plant species.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluv. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of

chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Karst (topography). The relief of an area underlain by limestone that dissolves in differing degrees, thus forming numerous depressions or small basins.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat} . Saturated hydraulic conductivity. (See Permeability.)

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $1/3$ - or $1/10$ -bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loamy soil. Coarse sandy loam, sandy loam, fine sandy loam, very fine sandy loam, loam, silt loam, silt, clay loam, sandy clay loam, or silty clay loam.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds

making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mean annual increment (MAI). The average annual increase in volume of a tree during the entire life of the tree.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Merchantable trees. Trees that are of sufficient size to be economically processed into wood products.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few*, *common*, and *many*; size—*fine*, *medium*, and *coarse*; and contrast—*faint*, *distinct*, and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and

chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Overstory. The trees in a forest that form the upper crown cover.

Oxbow. The horseshoe-shaped channel of a former meander, remaining after the stream formed a cutoff across a narrow meander neck.

Paleoterrace. An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan*, *fragipan*, *claypan*, *plowpan*, and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher lying areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Percolates slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid or very rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth).

Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination

of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relict stream terrace. One of a series of platforms in or adjacent to a stream valley that formed prior to the current stream system.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Riser. The relatively short, steeply sloping area below a terrace tread that grades to a lower terrace tread or base level.

Riverwash. Unstable areas of sandy, silty, clayey, or gravelly sediments. These areas are flooded, washed, and reworked by rivers so frequently that they support little or no vegetation.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than lava flows and rock-lined pits.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil

before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Salinity. The electrical conductivity of a saline soil. It is expressed, in millimhos per centimeter, as follows:

Nonsaline	0 to 4
Slightly saline	4 to 8
Moderately saline	8 to 16
Strongly saline	more than 16

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Sandy soil. Sand or loamy sand.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sawlogs. Logs of suitable size and quality for the production of lumber.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Seasonal wetness (in tables). The soil may be wet during the period of desired use. The wetness usually occurs during the winter and early spring.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Sedimentary uplands. Land areas of bedrock formed from water- or wind-deposited sediments. These areas are higher on the landscape than the flood plain.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole. A depression in the landscape where limestone has been dissolved.

Site class. A grouping of site indexes into five to seven production capability levels. Each level can be represented by a site curve.

Site curve (50-year). A set of related curves on a graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 50 years old or are 50 years old at breast height.

Site curve (100-year). A set of related curves on a

graph that shows the average height of dominant or dominant and codominant trees for a range of ages on soils that differ in productivity. Each level is represented by a curve. The basis of the curves is the height of dominant or dominant and codominant trees that are 100 years old or are 100 years old at breast height.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Skid trails. Pathways along which logs are dragged to a common site for loading onto a logging truck.

Slippage (in tables). Soil mass susceptible to movement downslope when loaded, excavated, or wet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slope/erodibility (in tables). A combination of slope and susceptibility to water erosion may restrict the specified use.

Slow intake (in tables). The slow movement of water into the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil reaction (in tables). The soil reaction is either too high or too low for the specified use.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stickiness (surface) (in tables). The soil is slippery and sticky when wet and slow to dry.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Strath terrace. A surface cut formed by the erosion of hard or semiconsolidated bedrock and thinly mantled with stream deposits.

Stream channel. The hollow bed where a natural stream of surface water flows or may flow; the deepest or central part of the bed, formed by the main current and covered more or less continuously by water.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor produced during a former stage of erosion or deposition.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand*, *loamy sand*, *sandy loam*, *loam*, *silt loam*, *silt*, *sandy clay loam*, *clay loam*, *silty clay loam*, *sandy clay*, *silty clay*, and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.” The abbreviations

(see table 18) are *C—clay*, *CL—clay loam*, *COS—coarse sand*, *COSL—coarse sandy loam*, *FS—fine sand*, *FSL—fine sandy loam*, *L—loam*, *LCOS—loamy coarse sand*, *LFS—loamy fine sand*, *LS—loamy sand*, *LVFS—loamy very fine sand*, *S—sand*, *SC—sandy clay*, *SCL—sandy clay loam*, *SI—silt*, *SIC—silty clay*, *SICL—silty clay loam*, *SIL—silt loam*, *SL—sandy loam*, *VFS—very fine sand*, and *VFSL—very fine sandy loam*.

Terms used in lieu of texture descriptions are *WB—weathered bedrock* and *UWB—unweathered bedrock*. The texture modifiers that may apply to textural classes are *BY—bouldery*, *BYV—very bouldery*, *BYX—extremely bouldery*, *CB—cobbly*, *CBV—very cobbly*, *CBX—extremely cobbly*, *CN—channery*, *CNV—very channery*, *CNX—extremely channery*, *FL—flaggy*, *FLV—very flaggy*, *FLX—extremely flaggy*, *GR—gravelly*, *GRV—very gravelly*, *GRX—extremely gravelly*, *SR—stratified*, *ST—stony*, *STV—very stony*, and *STX—extremely stony*.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Too clayey (in tables). The soil is slippery and sticky when wet and slow to dry.

Too sandy (in tables). The soil is soft and loose, droughty, and low in fertility or is too fine to be used as gravel.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Trafficability. The degree to which a soil is capable of supporting vehicular traffic across a wide range in soil moisture conditions.

Tread. The relatively flat surface of a terrace that was cut or built by stream or wave action.

Upland. Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley. An elongated depressional area primarily developed by stream action.

Valley fill. In glaciated regions, material deposited in

stream valleys by glacial meltwater. In nonglaciaded regions, alluvium deposited by heavily loaded streams.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Water-spreading. Diverting runoff from natural channels by means of a system of dams, dikes, or ditches and spreading it over relatively flat surfaces.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the

earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an oven-dry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation
(Recorded in the period 1961-90 at California, Missouri)

	Temperature						Precipitation					
Month				2 years in 10 will have--				2 years in 10 will have--				
	Average	Average	Average			Average	Average			Average	Average	
	daily	daily		Maximum	Minimum	number of		Less	More	number of	snowfall	
	maximum	minimum		temperature	temperature	growing		than--	than--	days with		
				higher	lower	degree				0.10 inch		
				than--	than--	days*				or more		
	°F	°F	°F	°F	°F	Units	In	In	In		In	
January----	41.2	20.2	30.7	72	-12	6	1.12	0.29	1.77	2	4.4	
February---	46.4	24.6	35.5	75	-7	20	1.56	.59	2.38	3	4.9	
March-----	58.5	34.6	46.5	83	8	91	3.01	1.33	4.45	5	1.5	
April-----	69.4	45.5	57.4	88	24	261	3.66	2.19	4.97	6	.2	
May-----	77.2	54.7	65.9	90	35	478	5.38	3.58	7.03	7	.0	
June-----	85.0	63.3	74.1	97	47	680	4.36	2.05	6.35	6	.0	
July-----	91.0	68.3	79.6	102	53	842	3.36	1.66	4.84	4	.0	
August-----	89.8	66.3	78.1	103	50	822	3.19	1.34	4.76	5	.0	
September--	82.3	58.5	70.4	98	36	573	4.22	1.67	6.37	5	.0	
October----	71.7	47.1	59.4	91	27	297	3.30	1.78	4.85	5	.0	
November---	57.6	36.3	47.0	80	12	88	2.90	1.24	4.31	5	1.1	
December---	43.9	24.3	34.1	70	-7	12	2.24	1.01	3.29	4	2.2	
Yearly:												
Average---	67.8	45.3	56.6	---	---	---	---	---	---	---	---	
Extreme---	109	-21	---	104	-13	---	---	---	---	---	---	
Total-----	---	---	---	---	---	4,171	38.31	30.92	45.04	57	14.3	

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

Table 2.--Freeze Dates in Spring and Fall
(Recorded in the period 1961-90 at California, Missouri)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 7	Apr. 14	Apr. 24
2 years in 10 later than--	Apr. 1	Apr. 9	Apr. 19
5 years in 10 later than--	Mar. 21	Apr. 1	Apr. 11
First freezing temperature in fall:			
1 year in 10 earlier than--	Oct. 30	Oct. 16	Oct. 6
2 years in 10 earlier than--	Nov. 4	Oct. 22	Oct. 12
5 years in 10 earlier than--	Nov. 14	Nov. 2	Oct. 23

Table 3.--Growing Season
(Recorded in the period 1961-90 at California,
Missouri)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	215	196	175
8 years in 10	223	202	182
5 years in 10	238	215	194
2 years in 10	252	228	207
1 year in 10	260	234	213

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
15002	McGirk silt loam, 1 to 3 percent slopes-----	1,177	0.5
60001	Menfro silt loam, 5 to 9 percent slopes-----	1,378	0.5
60003	Menfro silt loam, 9 to 14 percent slopes, eroded-----	1,475	0.6
60004	Menfro silt loam, 14 to 20 percent slopes, eroded-----	1,943	0.8
60005	Menfro silt loam, 20 to 35 percent slopes-----	1,546	0.6
60051	Urban land-Harvester complex, 3 to 15 percent slopes-----	10,035	3.9
60052	Urban land-Udorthents complex, 3 to 15 percent slopes-----	1,574	0.6
64002	Freeburg silt loam, 1 to 3 percent slopes-----	4,299	1.7
64007	Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded-----	4,969	1.9
64010	Urban land-Freeburg complex, 0 to 3 percent slopes, rarely flooded-----	1,348	0.5
64011	Kliever loam, 2 to 5 percent slopes-----	295	0.1
64012	Kliever loam, 5 to 9 percent slopes-----	153	*
64013	Kliever loam, 9 to 14 percent slopes, eroded-----	260	0.1
64014	Kliever loam, 14 to 20 percent slopes, eroded-----	259	0.1
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded-----	6,003	2.3
66004	Dockery silt loam, 0 to 2 percent slopes, frequently flooded-----	1,338	0.5
66006	Waldron silty clay loam, 0 to 2 percent slopes, occasionally flooded-----	938	0.4
66009	Haynie silt loam, 0 to 2 percent slopes, occasionally flooded-----	2,506	1.0
66010	Sarpy fine sand, 0 to 2 percent slopes, frequently flooded-----	1,163	0.5
66026	Blake loam, 0 to 2 percent slopes, occasionally flooded-----	1,223	0.5
66027	Haynie very fine sandy loam, 0 to 2 percent slopes, frequently flooded---	1,519	0.6
66028	Leta silty clay loam, 0 to 2 percent slopes, occasionally flooded-----	756	0.3
70023	Eldon silt loam, 3 to 8 percent slopes-----	536	0.2
70029	Moko-Rock outcrop complex, 15 to 50 percent slopes, very stony-----	517	0.2
70046	Sacville silt loam, 2 to 5 percent slopes-----	1,004	0.4
73012	Gravois silt loam, 3 to 8 percent slopes-----	12,393	4.8
73035	Gravois silt loam, 8 to 15 percent slopes-----	18,403	7.2
73040	Maplewood silt loam, 2 to 5 percent slopes, eroded-----	210	*
73041	Maplewood silt loam, 5 to 9 percent slopes, eroded-----	4,478	1.7
73042	Niangua-Bardley complex, 15 to 50 percent slopes, extremely stony-----	3,973	1.5
73048	Rueter gravelly silt loam, 3 to 8 percent slopes-----	716	0.3
73050	Rock outcrop-Bardley complex, 35 to 99 percent slopes, extremely stony---	871	0.3
73088	Rueter very gravelly silt loam, 8 to 15 percent slopes, very stony-----	766	0.3
73089	Rueter very gravelly silt loam, 15 to 35 percent slopes, very stony-----	11,375	4.4
73095	Gravois silt loam, 15 to 20 percent slopes-----	869	0.3
73101	Wrengart silt loam, 5 to 9 percent slopes-----	3	*
73112	Gunlock silt loam, 3 to 8 percent slopes-----	19,430	7.6
73250	Gatewood-Moko complex, 3 to 8 percent slopes, very stony-----	4,153	1.6
73251	Gatewood-Moko complex, 8 to 20 percent slopes, very stony-----	32,637	12.7
73253	Ocie gravelly silt loam, 3 to 8 percent slopes-----	799	0.3
73254	Ocie gravelly silt loam, 8 to 15 percent slopes, very stony-----	4,398	1.7
73255	Ocie very gravelly silt loam, 15 to 35 percent slopes, extremely stony---	3,587	1.4
73256	Arkana gravelly silt loam, 3 to 8 percent slopes-----	1,011	0.4
73257	Caneyville silty clay loam, 3 to 8 percent slopes, eroded-----	923	0.4
73258	Cotton silt loam, 1 to 3 percent slopes, eroded-----	1,022	0.4
73259	Cotton silt loam, 3 to 8 percent slopes, eroded-----	4,102	1.6
73260	Maplewood silt loam, 2 to 5 percent slopes, bedrock substratum-----	982	0.4
73261	Wrengart silt loam, 5 to 9 percent slopes, bedrock substratum-----	15,184	5.9
73262	Wrengart silt loam, 9 to 14 percent slopes, bedrock substratum-----	26,818	10.4
73263	Wrengart silt loam, 14 to 20 percent slopes, eroded, bedrock substratum--	7,636	3.0
74634	Hartville silt loam, 3 to 8 percent slopes-----	3,469	1.3
74659	Deible silt loam, 0 to 2 percent slopes, occasionally flooded-----	783	0.3
74678	Racoon silt loam, 0 to 2 percent slopes, occasionally flooded-----	4	*
75376	Cedargap gravelly silt loam, 0 to 3 percent slopes, frequently flooded---	1,207	0.5
75387	Hacreek silt loam, 0 to 2 percent slopes, occasionally flooded-----	1,214	0.5
75399	Jamesfin silt loam, 0 to 3 percent slopes, frequently flooded-----	13,033	5.1
75415	Jemerson silt loam, 0 to 3 percent slopes, occasionally flooded-----	654	0.3
75456	Racket silt loam, 0 to 3 percent slopes, frequently flooded, clayey substratum-----	3,332	1.3
75457	Urban land-Jamesfin complex, 0 to 3 percent slopes, occasionally flooded--	341	0.1
75458	Tanglenook silty clay loam, 0 to 2 percent slopes, occasionally flooded--	1,365	0.5
99000	Pits, quarries-----	211	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
99001	Water-----	5,496	2.1
99012	Urban land, 3 to 15 percent slopes-----	1,077	0.4
	Total-----	257,139	100.0

* Less than 0.1 percent.

Table 5.--Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Soil name
15002	McGirk silt loam, 1 to 3 percent slopes (where drained)
64002	Freeburg silt loam, 1 to 3 percent slopes
64007	Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded
64011	Kliever loam, 2 to 5 percent slopes
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded (where drained)
66004	Dockery silt loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
66006	Waldron silty clay loam, 0 to 2 percent slopes, occasionally flooded
66009	Haynie silt loam, 0 to 2 percent slopes, occasionally flooded
66026	Blake loam, 0 to 2 percent slopes, occasionally flooded
66027	Haynie very fine sandy loam, 0 to 2 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
66028	Leta silty clay loam, 0 to 2 percent slopes, occasionally flooded
70046	Sacville silt loam, 2 to 5 percent slopes (where drained)
73040	Maplewood silt loam, 2 to 5 percent slopes, eroded
73258	Cotton silt loam, 1 to 3 percent slopes, eroded
73260	Maplewood silt loam, 2 to 5 percent slopes, bedrock substratum
74659	Deible silt loam, 0 to 2 percent slopes, occasionally flooded (where drained)
74678	Raccoon silt loam, 0 to 2 percent slopes, occasionally flooded (where drained)
75387	Hacreek silt loam, 0 to 2 percent slopes, occasionally flooded
75399	Jamesfin silt loam, 0 to 3 percent slopes, frequently flooded (where protected from flooding or not frequently flooded during the growing season)
75415	Jemerson silt loam, 0 to 3 percent slopes, occasionally flooded
75456	Racket silt loam, 0 to 3 percent slopes, frequently flooded, clayey substratum (where protected from flooding or not frequently flooded during the growing season)
75458	Tanglenook silty clay loam, 0 to 2 percent slopes, occasionally flooded (where drained)

Table 6.--Land Capability and Yields per Acre of Crops

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Corn	Grain sorghum	Orchard- grass-red clover*	Soybeans	Tall fescue	Warm-season grasses**	Winter wheat
		Bu	Bu	Tons	Bu	Tons	Tons	Bu
15002: McGirk-----	2e	83	66	6.5	28	6.0	7.3	33
60001: Menfro-----	3e	108	94	5.6	40	5.0	5.3	44
60003: Menfro-----	3e	102	89	5.6	38	5.0	5.3	42
60004: Menfro-----	4e	94	83	5.6	35	5.0	5.3	38
60005: Menfro-----	6e	---	---	5.6	---	5.0	5.3	---
60051: Urban land.								
Harvester-----	7e	---	---	---	---	---	---	---
60052: Urban land.								
Udorthents-----	6s	---	---	---	---	---	---	---
64002: Freeburg-----	2e	119	104	6.4	44	5.0	6.6	48
64007: Freeburg-----	2w	100	88	6.4	39	5.0	6.6	41
64010: Urban land.								
Freeburg-----	2w	115	100	6.4	43	5.0	6.6	47
64011: Kliever-----	2e	112	97	5.6	41	5.0	5.3	46
64012: Kliever-----	3e	108	94	5.6	40	5.0	5.3	44

See footnotes at end of table.

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Orchard- grass-red clover*	Soybeans	Tall fescue	Warm-season grasses**	Winter wheat
		Bu	Bu	Tons	Bu	Tons	Tons	Bu
64013: Kliever-----	3e	102	89	5.6	38	5.0	5.3	42
64014: Kliever-----	4e	94	82	5.6	35	5.0	5.3	39
66000: Moniteau-----	3w	96	89	5.8	32	5.3	7.4	38
66004: Dockery-----	3w	102	89	6.4	38	5.0	6.6	42
66006: Waldron-----	2w	91	81	5.8	34	5.3	7.3	37
66009: Haynie-----	2w	108	94	6.4	40	5.0	6.6	44
66010: Sarpy-----	4w	---	---	1.0	---	2.0	2.5	---
66026: Blake-----	2w	110	96	6.4	41	5.0	6.6	45
66027: Haynie-----	5w	---	---	6.4	---	5.0	6.6	---
66028: Leta-----	2w	100	87	5.8	37	5.3	7.3	41
70023: Eldon-----	4e	73	66	4.4	27	4.0	4.6	30
70029: Moko-----	7s	---	---	---	---	---	---	---
Rock outcrop.								
70046: Sacville-----	2e	97	90	6.5	33	6.0	7.3	39
73012: Gravois-----	3e	73	66	3.6	27	3.6	3.8	30
73035: Gravois-----	4e	65	58	3.6	20	3.6	3.8	23

See footnotes at end of table.

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Orchard- grass-red clover*	Soybeans	Tall fescue	Warm-season grasses**	Winter wheat
		Bu	Bu	Tons	Bu	Tons	Tons	Bu
73040: Maplewood-----	3e	90	83	4.5	32	5.0	6.0	37
73041: Maplewood-----	3e	85	78	4.5	32	5.0	6.0	37
73042: Niangua-Bardley-----	7e	---	---	---	---	---	---	---
73048: Rueter-----	4e	---	---	4.4	---	4.0	4.6	---
73050: Rock outcrop. Bardley-----	7e	---	---	---	---	---	---	---
73088: Rueter-----	4s	---	---	4.4	---	4.0	4.6	---
73089: Rueter-----	7e	---	---	4.4	---	4.0	4.6	---
73095: Gravois-----	6e	---	---	3.6	---	3.6	3.8	---
73101: Wrengart-----	3e	113	99	3.6	42	3.6	3.8	46
73112: Gunlock-----	3e	75	68	3.6	29	3.6	3.8	34
73250: Gatewood-----	4e	---	---	4.4	---	4.0	4.6	---
Moko-----	6s	---	---	---	---	1.0	1.4	---
73251: Gatewood-----	7e	---	---	4.4	---	4.0	4.6	---
Moko-----	7s	---	---	---	---	1.0	1.4	---
73253: Ocie-----	4e	---	---	4.4	---	4.0	4.6	---

See footnotes at end of table.

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Orchard- grass-red clover*	Soybeans	Tall fescue	Warm-season grasses**	Winter wheat
		Bu	Bu	Tons	Bu	Tons	Tons	Bu
73254: Ocie-----	6e	---	---	4.4	---	4.0	4.6	---
73255: Ocie-----	7e	---	---	4.4	---	4.0	4.6	---
73256: Arkana-----	4e	---	---	4.4	---	4.0	4.6	---
73257: Caneyville-----	4e	70	61	4.4	26	4.0	4.6	29
73258: Cotton-----	2e	90	78	4.5	33	5.0	6.0	37
73259: Cotton-----	3e	85	76	4.5	32	5.0	6.0	36
73260: Maplewood-----	3e	90	83	4.5	32	5.0	6.0	37
73261: Wrengart-----	3e	113	99	3.6	42	3.6	3.8	46
73262: Wrengart-----	4e	105	92	3.6	39	3.6	3.8	43
73263: Wrengart-----	6e	---	---	3.6	---	3.6	3.8	---
74634: Hartville-----	3e	91	81	6.5	34	6.0	7.3	37
74659: Deible-----	4w	91	81	5.8	34	5.3	7.3	37
74678: Racoon-----	2w	91	81	5.8	28	5.3	7.4	37
75376: Cedargap-----	3w	---	---	1.0	---	2.0	2.5	22
75387: Hacreek-----	2w	118	111	6.4	37	5.0	6.6	49

See footnotes at end of table.

Table 6.--Land Capability and Yields per Acre of Crops--Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Orchard- grass-red clover*	Soybeans	Tall fescue	Warm-season grasses**	Winter wheat
		Bu	Bu	Tons	Bu	Tons	Tons	Bu
75399: Jamesfin-----	2w	91	81	6.6	34	5.0	6.4	37
75415: Jemerson-----	2w	120	113	6.6	38	5.0	6.4	40
75456: Racket-----	2w	85	76	6.6	32	5.0	6.4	36
75457: Urban land.								
Jamesfin-----	2w	108	94	6.6	40	5.0	6.4	44
75458: Tanglenook-----	2w	102	89	5.8	37	5.3	7.3	41
99000: Pits, quarries.								
99001: Water.								
99012: Urban land.								

* Alsike clover should be substituted for red clover in somewhat poorly drained and poorly drained areas.

** Average yield of all suitable native warm-season grasses.

Table 7.--Pasture and Hayland Suitability Groups

(See text for descriptions of the groups listed in this table.)

Map symbol	Map unit name	Component name	Pasture and hayland group
15002	McGirk silt loam, 1 to 3 percent slopes-----	McGirk	WCU
60001	Menfro silt loam, 5 to 9 percent slopes-----	Menfro	LyU
60003	Menfro silt loam, 9 to 14 percent slopes, eroded-----	Menfro	LyU
60004	Menfro silt loam, 14 to 20 percent slopes, eroded-----	Menfro	LyU
60005	Menfro silt loam, 20 to 35 percent slopes-----	Menfro	LyU
60051	Urban land-Harvester complex, 3 to 15 percent slopes-----	Urban land	---
		Harvester	LyU
60052	Urban land-Udorthents complex, 3 to 15 percent slopes-----	Urban land	---
		Udorthents	---
64002	Freeburg silt loam, 1 to 3 percent slopes-----	Freeburg	LyU
64007	Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded-----	Freeburg	WLO
64010	Urban land-Freeburg complex, 0 to 3 percent slopes, rarely flooded-----	Urban land	---
		Freeburg	WLO
64011	Kliever loam, 2 to 5 percent slopes-----	Kliever	LyU
64012	Kliever loam, 5 to 9 percent slopes-----	Kliever	LyU
64013	Kliever loam, 9 to 14 percent slopes, eroded-----	Kliever	LyU
64014	Kliever loam, 14 to 20 percent slopes, eroded-----	Kliever	LyU
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded-----	Moniteau	WLB
66004	Dockery silt loam, 0 to 2 percent slopes, frequently flooded-----	Dockery	WLO
66006	Waldron silty clay loam, 0 to 2 percent slopes, occasionally flooded-----	Waldron	WCB
66009	Haynie silt loam, 0 to 2 percent slopes, occasionally flooded-----	Haynie	WLO
66010	Sarpy fine sand, 0 to 2 percent slopes, frequently flooded-----	Sarpy	SyO
66026	Blake loam, 0 to 2 percent slopes, occasionally flooded-----	Blake	WLO
66027	Haynie very fine sandy loam, 0 to 2 percent slopes, frequently flooded-----	Haynie	WLO
66028	Leta silty clay loam, 0 to 2 percent slopes, occasionally flooded-----	Leta	WCB
70023	Eldon silt loam, 3 to 8 percent slopes-----	Eldon	GrU
70029	Moko-Rock outcrop complex, 15 to 50 percent slopes, very stony-----	Moko	GNS
		Rock outcrop	---
70046	Sacville silt loam, 2 to 5 percent slopes-----	Sacville	WCU
73012	Gravois silt loam, 3 to 8 percent slopes-----	Gravois	LyP
73035	Gravois silt loam, 8 to 15 percent slopes-----	Gravois	LyP
73040	Maplewood silt loam, 2 to 5 percent slopes, eroded-----	Maplewood	WtP
73041	Maplewood silt loam, 5 to 9 percent slopes, eroded-----	Maplewood	WtP
73042	Niangua-Bardley complex, 15 to 50 percent slopes, extremely stony-----	Niangua	GNS
		Bardley	GNS
73048	Rueter gravelly silt loam, 3 to 8 percent slopes-----	Rueter	GrU
73050	Rock outcrop-Bardley complex, 35 to 99 percent slopes, extremely stony-----	Rock outcrop	---
		Bardley	GNS
73088	Rueter very gravelly silt loam, 8 to 15 percent slopes, very stony-----	Rueter	GrU
73089	Rueter very gravelly silt loam, 15 to 35 percent slopes, very stony-----	Rueter	GrU
73095	Gravois silt loam, 15 to 20 percent slopes-----	Gravois	LyP
73101	Wrengart silt loam, 5 to 9 percent slopes-----	Wrengart	LyU
73112	Gunlock silt loam, 3 to 8 percent slopes-----	Gunlock	LyP
73250	Gatewood-Moko complex, 3 to 8 percent slopes, very stony-----	Gatewood	MDU
		Moko	ShU
73251	Gatewood-Moko complex, 8 to 20 percent slopes, very stony-----	Gatewood	MDU
		Moko	ShU
73253	Ocie gravelly silt loam, 3 to 8 percent slopes-----	Ocie	GrU
73254	Ocie gravelly silt loam, 8 to 15 percent slopes, very stony-----	Ocie	GrU
73255	Ocie very gravelly silt loam, 15 to 35 percent slopes, extremely stony-----	Ocie	GrU
73256	Arkana gravelly silt loam, 3 to 8 percent slopes-----	Arkana	MDU
73257	Caneyville silty clay loam, 3 to 8 percent slopes, eroded-----	Caneyville	MDU
73258	Cotton silt loam, 1 to 3 percent slopes, eroded-----	Cotton	WtP
73259	Cotton silt loam, 3 to 8 percent slopes, eroded-----	Cotton	WtP
73260	Maplewood silt loam, 2 to 5 percent slopes, bedrock substratum-----	Maplewood	WtP
73261	Wrengart silt loam, 5 to 9 percent slopes, bedrock substratum-----	Wrengart	LyU
73262	Wrengart silt loam, 9 to 14 percent slopes, bedrock substratum-----	Wrengart	LyU
73263	Wrengart silt loam, 14 to 20 percent slopes, eroded, bedrock substratum-----	Wrengart	LyU
74634	Hartville silt loam, 3 to 8 percent slopes-----	Hartville	WCU
74659	Deible silt loam, 0 to 2 percent slopes, occasionally flooded-----	Deible	WCB

Table 7.--Pasture and Hayland Suitability Groups--Continued

Map symbol	Map unit name	Component name	Pasture and hayland group
74678	Raccoon silt loam, 0 to 2 percent slopes, occasionally flooded-----	Raccoon	WLB
75376	Cedargap gravelly silt loam, 0 to 3 percent slopes, frequently flooded-----	Cedargap	GrO
75387	Hacreek silt loam, 0 to 2 percent slopes, occasionally flooded-----	Hacreek	WLO
75399	Jamesfin silt loam, 0 to 3 percent slopes, frequently flooded-----	Jamesfin	LyO
75415	Jemerson silt loam, 0 to 3 percent slopes, occasionally flooded-----	Jemerson	LyO
75456	Racket silt loam, 0 to 3 percent slopes, frequently flooded, clayey substratum	Racket	LyO
75457	Urban land-Jamesfin complex, 0 to 3 percent slopes, occasionally flooded-----	Urban land	---
		Jamesfin	LyO
75458	Tanglenook silty clay loam, 0 to 2 percent slopes, occasionally flooded-----	Tanglenook	WCB
99000	Pits, quarries-----	Pits, quarries	---
99001	Water-----	Water	---
99012	Urban land, 3 to 15 percent slopes-----	Urban land	---

Table 8.--Forest Productivity

(Only the soils suitable for production of commercial trees are listed. Site index is based on 50 years. Absence of an entry indicates that information was not available.)

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
15002: McGirk-----	White oak-----	55	43	Black oak, pin oak, white oak
60001: Menfro-----	Black oak-----	73	57	Black walnut,
	Northern red oak----	81	57	northern red oak,
	Sugar maple-----	68	43	sugar maple,
	White ash-----	70	43	tuliptree, white
	White oak-----	59	43	oak
60003: Menfro-----	Black oak-----	73	57	Black walnut,
	Northern red oak----	81	57	northern red oak,
	Sugar maple-----	68	43	sugar maple,
	White ash-----	70	43	tuliptree, white
	White oak-----	59	43	oak
60004: Menfro-----	Black oak-----	73	57	Black walnut,
	Northern red oak----	81	57	northern red oak,
	Sugar maple-----	68	43	sugar maple,
	White ash-----	70	43	tuliptree, white
	White oak-----	59	43	oak
60005: Menfro-----	Black oak-----	73	57	Black walnut,
	Northern red oak----	81	57	northern red oak,
	Sugar maple-----	68	43	sugar maple,
	White ash-----	70	43	tuliptree, white
	White oak-----	59	43	oak
64002: Freeburg-----	Black walnut-----	---	---	Eastern cottonwood,
	Green ash-----	---	---	green ash, pecan,
	White oak-----	65	43	pin oak, white oak
64007: Freeburg-----	Black walnut-----	---	---	Green ash, pecan,
	Green ash-----	---	---	pin oak, white oak
	White oak-----	65	43	
64010: Urban land.				
Freeburg-----	Black walnut-----	---	---	Black oak, eastern
	Green ash-----	---	---	cottonwood, green
	White oak-----	65	43	ash, pecan, pin
				oak, white oak
64011: Kliever-----	Eastern cottonwood--	100	129	Eastern cottonwood,
	Green ash-----	80	57	silver maple
	Silver maple-----	90	86	

Table 8.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
64012: Kliever-----	Eastern cottonwood--	100	129	Eastern cottonwood, silver maple
	Green ash-----	80	57	
	Silver maple-----	90	86	
64013: Kliever-----	Eastern cottonwood--	100	129	Eastern cottonwood, silver maple
	Green ash-----	80	57	
	Silver maple-----	90	86	
64014: Kliever-----	Eastern cottonwood--	100	129	Eastern cottonwood, silver maple
	Green ash-----	80	57	
	Silver maple-----	90	86	
66000: Moniteau-----	Pin oak-----	70	57	Black willow, eastern cottonwood, green ash, pin oak, silver maple
66004: Dockery-----	Pin oak-----	76	57	Eastern cottonwood, pecan, pin oak
66006: Waldron-----	Eastern cottonwood--	110	157	Eastern cottonwood, green ash, pecan, pin oak, silver maple
	Pin oak-----	80	57	
66009: Haynie-----	American sycamore---	110	157	Black walnut, eastern cottonwood
	Black walnut-----	---	---	
	Eastern cottonwood--	110	157	
	Green ash-----	---	---	
66010: Sarpy-----	Eastern cottonwood--	95	114	American sycamore, black willow, eastern cottonwood
	Silver maple-----	90	43	
66026: Blake-----	American sycamore---	---	---	American sycamore, eastern cottonwood, green ash, silver maple
	Eastern cottonwood--	115	172	
	Silver maple-----	---	---	
66027: Haynie-----	American sycamore---	110	157	Black walnut, eastern cottonwood
	Black walnut-----	---	---	
	Eastern cottonwood--	110	157	
	Green ash-----	---	---	
66028: Leta-----	Black willow-----	---	---	Eastern cottonwood, green ash, pecan, silver maple
	Eastern cottonwood--	90	100	

Table 8.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
70029: Moko----- Rock outcrop.	Eastern redcedar----	30	29	Eastern redcedar
73012: Gravois-----	Black oak----- Northern red oak---- White oak-----	60 60 57	43 43 43	Black oak, northern red oak, white oak
73035: Gravois-----	Black oak----- Northern red oak---- White oak-----	58 62 50	43 43 43	Northern red oak, white oak
73040: Maplewood-----	Black oak----- Pin oak----- Post oak----- White oak-----	--- --- --- 60	--- --- --- 43	Black oak, white oak
73041: Maplewood-----	Black oak----- Pin oak----- Post oak----- White oak-----	--- --- --- 60	--- --- --- 43	Black oak, white oak
73042: Niangua-----	Black oak----- Northern red oak---- White oak-----	56 --- 54	43 --- 43	Northern red oak, Shumard's oak
Bardley-----	Black oak----- Post oak----- White oak-----	54 45 42	43 29 29	Black oak, eastern redcedar
73048: Rueter-----	Black oak----- Northern red oak---- White oak-----	61 61 58	43 43 43	Northern red oak, white oak
73050: Rock outcrop.				
Bardley-----	Black oak----- Post oak----- White oak-----	54 45 42	43 29 29	Black oak, eastern redcedar
73088: Rueter-----	Black oak----- Northern red oak---- White oak-----	61 61 58	43 43 43	Northern red oak, white oak
73089: Rueter-----	Black oak----- Northern red oak---- White oak-----	61 61 58	43 43 43	Northern red oak, white oak
73095: Gravois-----	Black oak----- Northern red oak---- White oak-----	58 62 50	43 43 43	Northern red oak, scarlet oak, white oak

Table 8.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
73101: Wrengart-----	Black oak-----	---	---	Black oak, northern red oak, white oak
	Northern red oak----	70	57	
	White oak-----	66	43	
73112: Gunlock-----	Black oak-----	60	43	Black oak, northern red oak, white oak
	Northern red oak----	60	43	
	White oak-----	57	43	
73250: Gatewood-----	Black oak-----	42	29	Eastern redcedar
	Eastern redcedar----	40	43	
	Post oak-----	43	29	
	White oak-----	45	29	
Moko-----	Eastern redcedar----	30	29	Eastern redcedar
73251: Gatewood-----	Black oak-----	42	29	Eastern redcedar
	Eastern redcedar----	40	43	
	Post oak-----	43	29	
	White oak-----	45	29	
Moko-----	Eastern redcedar----	30	29	Eastern redcedar
73253: Ocie-----	Black oak-----	58	43	Northern red oak
	Northern red oak----	---	---	
	White oak-----	57	43	
73254: Ocie-----	Black oak-----	58	43	Northern red oak
	Northern red oak----	---	---	
	White oak-----	57	43	
73255: Ocie-----	Black oak-----	58	43	Northern red oak
	Northern red oak----	---	---	
	White oak-----	57	43	
73256: Arkana-----	Eastern redcedar----	35	---	Eastern redcedar
	Northern red oak----	55	---	
	Shortleaf pine-----	55	72	
	White oak-----	---	---	
73257: Caneyville-----	Black oak-----	65	43	Black oak, white oak
	Chinkapin oak-----	51	29	
	Eastern redcedar----	36	43	
	Hickory-----	---	---	
	Scarlet oak-----	53	43	
	Sugar maple-----	---	---	
	White oak-----	60	43	
73258: Cotton-----	Black oak-----	---	---	Black oak, pin oak, white ash, white oak
	Hickory-----	---	---	
	White oak-----	55	43	

Table 8.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
73259: Cotton-----	Black oak----- Hickory----- White oak-----	--- --- 55	--- --- 43	Black oak, pin oak, white ash, white oak
73260: Maplewood-----	Black oak----- Pin oak----- Post oak----- White oak-----	--- --- --- 60	--- --- --- 43	Black oak, white oak
73261: Wrengart-----	Black oak----- Northern red oak---- White oak-----	--- 70 66	--- 57 43	Black oak, northern red oak, white oak
73262: Wrengart-----	Black oak----- Northern red oak---- White oak-----	--- 70 66	--- 57 43	Black oak, northern red oak, white oak
73263: Wrengart-----	Black oak----- Northern red oak---- White oak-----	--- 70 66	--- 57 43	Black oak, northern red oak, white oak
74634: Hartville-----	Green ash----- Pin oak----- Silver maple----- White oak-----	--- --- --- 55	--- --- --- 43	Eastern cottonwood, green ash, pin oak, silver maple
74659: Deible-----	Eastern cottonwood-- Pin oak----- Silver maple-----	100 75 95	129 57 43	Eastern cottonwood, green ash, pin oak
74678: Racoon-----	American sycamore--- Green ash----- Pin oak----- White oak-----	--- --- 80 ---	--- --- 57 ---	Green ash, pin oak
75376: Cedargap-----	Black oak----- Black walnut----- Green ash----- Shumard's oak-----	66 --- --- ---	43 --- --- ---	Black walnut, green ash, Shumard's oak, white oak
75399: Jamesfin-----	American sycamore--- Black walnut----- Eastern cottonwood-- Green ash----- River birch----- White ash-----	--- 90 --- --- --- 102	--- 57 --- --- --- 57	Black walnut, eastern cottonwood, green ash
75415: Jemerson-----	Black oak----- Northern red oak---- White oak-----	65 60 65	43 43 43	Black oak, green ash, northern red oak

Table 8.--Forest Productivity--Continued

Map symbol and soil name	Potential productivity			Trees to manage
	Common trees	Site index	Volume of wood fiber cu ft/ac	
75456: Racket-----	American sycamore---	---	---	Black walnut, green ash
	Black walnut-----	72	72	
	Northern red oak----	---	---	
	White ash-----	---	---	
75457: Urban land.				
Jamesfin-----	American sycamore---	---	---	Black walnut, eastern cottonwood, white ash
	Black walnut-----	---	---	
	Eastern cottonwood--	---	---	
	River birch-----	---	---	
75458: Tanglenook-----	Eastern cottonwood--	90	100	American sycamore, common hackberry, eastern cottonwood, green ash, pin oak, silver maple
	Silver maple-----	80	29	

Table 9a.--Forest Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15002: McGirk-----	Moderately limited: seasonal wetness (moderately limited)	0.60	Moderately limited: seasonal wetness (moderately limited)	0.60	Limited: seasonal wetness (limited) low strength (moderately limited)	0.72 0.50	Limited: seasonal wetness (limited)	0.72	Limited: seasonal wetness (limited) low strength (moderately limited)	0.72 0.50
60001: Menfro-----	Not limited		Slightly limited: slope (slightly limited)	0.20	Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: low strength (moderately limited) slope (slightly limited)	0.50 0.15
60003: Menfro-----	Not limited		Moderately limited: slope (moderately limited)	0.47	Moderately limited: low strength (moderately limited)	0.50	Not limited		Limited: slope (limited) low strength (moderately limited)	0.76 0.50
60004: Menfro-----	Slightly limited: slope (slightly limited)	0.04	Limited: slope (limited)	0.68	Moderately limited: low strength (moderately limited) slope (slightly limited)	0.50 0.15	Slightly limited: slope (slightly limited)	0.15	Very limited: slope (very limited) low strength (moderately limited)	1.00 0.50
60005: Menfro-----	Slightly limited: slope (slightly limited)	0.18	Very limited: slope (very limited)	1.00	Limited: slope (limited) low strength (moderately limited)	0.72 0.50	Limited: slope (limited)	0.72	Very limited: slope (very limited) low strength (moderately limited)	1.00 0.50

Table 9a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60051:										
Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Not limited		Slightly limited: slope (slightly limited)	0.20	Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: low strength (moderately limited) slope (slightly limited)	0.50 0.15
60052:										
Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Udorthents-----	Limited: stickiness (surface) (limited) large stones (limited)	0.75 0.68	Very limited: large stones >35% (very limited) stickiness (surface) (limited) slope (moderately limited)	1.00 0.75 0.34	Limited: stickiness (surface) (limited)	0.75	Limited: stickiness (surface) (limited) large stones (limited)	0.75 0.68	Limited: stickiness (surface) (limited) slope (moderately limited)	0.75 0.45
64002:										
Freeburg-----	Not limited		Not limited		Moderately limited: low strength (moderately limited) seasonal wetness (moderately limited)	0.50 0.34	Moderately limited: seasonal wetness (moderately limited)	0.34	Moderately limited: low strength (moderately limited) seasonal wetness (moderately limited)	0.50 0.34
64007:										
Freeburg-----	Not limited		Not limited		Moderately limited: low strength (moderately limited) seasonal wetness (moderately limited)	0.50 0.34	Moderately limited: seasonal wetness (moderately limited)	0.34	Moderately limited: flooding (moderately limited) low strength (moderately limited) seasonal wetness (moderately limited)	0.60 0.50 0.34
64010:										
Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Not limited		Not limited		Moderately limited: low strength (moderately limited) seasonal wetness (moderately limited)	0.50 0.34	Moderately limited: seasonal wetness (moderately limited)	0.34	Moderately limited: low strength (moderately limited) seasonal wetness (moderately limited)	0.50 0.34

Table 9a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64011: Kliever-----	Not limited		Not limited		Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: low strength (moderately limited)	0.50
64012: Kliever-----	Not limited		Slightly limited: slope (slightly limited)	0.20	Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: low strength (moderately limited) slope (slightly limited)	0.50 0.15
64013: Kliever-----	Not limited		Moderately limited: slope (moderately limited)	0.47	Moderately limited: low strength (moderately limited)	0.50	Not limited		Limited: slope (limited) low strength (moderately limited)	0.76 0.50
64014: Kliever-----	Slightly limited: slope (slightly limited)	0.04	Limited: slope (limited)	0.68	Moderately limited: low strength (moderately limited) slope (slightly limited)	0.50 0.15	Slightly limited: slope (slightly limited)	0.15	Very limited: slope (very limited) low strength (moderately limited)	1.00 0.50
66000: Moniteau-----	Moderately limited: seasonal wetness (moderately limited)	0.60	Moderately limited: seasonal wetness (moderately limited)	0.60	Limited: seasonal wetness (limited) low strength (moderately limited)	0.91 0.50	Limited: seasonal wetness (limited)	0.91	Limited: seasonal wetness (limited) flooding (moderately limited) low strength (moderately limited)	0.91 0.60 0.50
66004: Dockery-----	Not limited		Not limited		Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.20	Slightly limited: seasonal wetness (slightly limited)	0.20	Very limited: flooding (very limited) low strength (moderately limited) seasonal wetness (slightly limited)	1.00 0.50 0.20

Table 9a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66006: Waldron-----	Moderately limited: stickiness (surface) (moderately limited)	0.50	Moderately limited: stickiness (surface) (moderately limited)	0.50	Moderately limited: stickiness (surface) (moderately limited) low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.50 0.20	Moderately limited: stickiness (surface) (moderately limited) seasonal wetness (slightly limited)	0.50 0.20	Moderately limited: flooding (moderately limited) stickiness (surface) (moderately limited) low strength (moderately limited)	0.60 0.50 0.50
66009: Haynie-----	Not limited		Not limited		Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: flooding (moderately limited) low strength (moderately limited)	0.60 0.50
66010: Sarpy-----	Not limited		Not limited		Not limited		Not limited		Very limited: flooding (very limited)	1.00
66026: Blake-----	Not limited		Not limited		Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: flooding (moderately limited) low strength (moderately limited)	0.60 0.50
66027: Haynie-----	Not limited		Not limited		Moderately limited: low strength (moderately limited)	0.50	Not limited		Very limited: flooding (very limited) low strength (moderately limited)	1.00 0.50
66028: Leta-----	Moderately limited: stickiness (surface) (moderately limited)	0.50	Moderately limited: stickiness (surface) (moderately limited)	0.50	Moderately limited: stickiness (surface) (moderately limited) low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.50 0.20	Moderately limited: stickiness (surface) (moderately limited) seasonal wetness (slightly limited)	0.50 0.20	Moderately limited: flooding (moderately limited) stickiness (surface) (moderately limited) low strength (moderately limited)	0.60 0.50 0.50

Table 9a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70023: Eldon-----	Not limited		Slightly limited: slope (slightly limited)	0.10	Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: low strength (moderately limited)	0.50
70029: Moko-----	Slightly limited: slope (slightly limited) small stones (slightly limited)	0.23 0.08	Very limited: slope (very limited) surface stones (moderately limited) small stones (slightly limited)	1.00 0.45 0.08	Limited: slope (limited)	0.87	Limited: slope (limited)	0.87	Very limited: slope (very limited) slippage potential (moderately limited)	1.00 0.50
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
70046: Sacville-----	Moderately limited: seasonal wetness (moderately limited)	0.60	Moderately limited: seasonal wetness (moderately limited)	0.60	Limited: seasonal wetness (limited) low strength (moderately limited)	0.91 0.50	Limited: seasonal wetness (limited)	0.91	Limited: seasonal wetness (limited) low strength (moderately limited)	0.91 0.50
73012: Gravois-----	Not limited		Slightly limited: slope (slightly limited)	0.10	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.26	Slightly limited: seasonal wetness (slightly limited)	0.26	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.26
73035: Gravois-----	Not limited		Moderately limited: slope (moderately limited)	0.43	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.26	Slightly limited: seasonal wetness (slightly limited)	0.26	Limited: slope (limited) low strength (moderately limited) seasonal wetness (slightly limited)	0.68 0.50 0.26
73040: Maplewood-----	Moderately limited: seasonal wetness (moderately limited)	0.60	Moderately limited: seasonal wetness (moderately limited)	0.60	Limited: seasonal wetness (limited) low strength (moderately limited)	0.62 0.50	Limited: seasonal wetness (limited)	0.62	Limited: seasonal wetness (limited) low strength (moderately limited)	0.62 0.50

Table 9a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73041: Maplewood-----	Moderately limited: seasonal wetness (moderately limited)	0.60	Moderately limited: seasonal wetness (moderately limited) slope (slightly limited)	0.60 0.20	Limited: seasonal wetness (limited) low strength (moderately limited)	0.62 0.50	Limited: seasonal wetness (limited)	0.62	Limited: seasonal wetness (limited) low strength (moderately limited) slope (slightly limited)	0.62 0.50 0.15
73042: Niangua-----	Moderately limited: surface stones (moderately limited) small stones (moderately limited) slope (slightly limited)	0.42 0.42 0.25	Very limited: slope (very limited) surface stones (limited) small stones (moderately limited)	1.00 0.79 0.42	Limited: slope (limited) large surface stones (moderately limited)	0.91 0.60	Limited: slope (limited) large surface stones (moderately limited) small stones (slightly limited)	0.91 0.60 0.30	Very limited: slope (very limited) large surface stones (moderately limited) surface stones (moderately limited)	1.00 0.60 0.42
Bardley-----	Moderately limited: surface stones (moderately limited) slope (slightly limited) small stones (slightly limited)	0.42 0.25 0.24	Very limited: slope (very limited) surface stones (limited) small stones (slightly limited)	1.00 0.79 0.24	Limited: slope (limited) large surface stones (moderately limited)	0.91 0.60	Limited: slope (limited) large surface stones (moderately limited) small stones (slightly limited)	0.91 0.60 0.01	Very limited: slope (very limited) large surface stones (moderately limited) surface stones (moderately limited)	1.00 0.60 0.42
73048: Rueter-----	Slightly limited: small stones (slightly limited)	0.17	Slightly limited: small stones (slightly limited) slope (slightly limited)	0.17 0.10	Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: slippage potential (moderately limited) low strength (moderately limited)	0.50 0.50
73050: Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited: slope (very limited) surface stones (moderately limited) small stones (slightly limited)	1.00 0.42 0.24	Very limited: slope (very limited) surface stones (limited) small stones (slightly limited)	1.00 0.79 0.24	Very limited: slope (very limited) large surface stones (moderately limited)	1.00 0.60	Very limited: slope (very limited) large surface stones (moderately limited) small stones (slightly limited)	1.00 0.60 0.01	Very limited: slope (very limited) large surface stones (moderately limited) surface stones (moderately limited)	1.00 0.60 0.42

Table 9a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73088: Rueter-----	Moderately limited: small stones (moderately limited)	0.53	Moderately limited: small stones (moderately limited) slope (moderately limited) surface stones (moderately limited)	0.53 0.47 0.45	Not limited		Moderately limited: small stones (moderately limited)	0.49	Limited: slope (limited) slippage potential (moderately limited)	0.76 0.50
73089: Rueter-----	Moderately limited: small stones (moderately limited) slope (slightly limited)	0.53 0.14	Limited: slope (limited) small stones (moderately limited) surface stones (moderately limited)	0.99 0.53 0.45	Moderately limited: slope (moderately limited)	0.60	Moderately limited: slope (moderately limited) small stones (moderately limited)	0.60 0.49	Very limited: slope (very limited) slippage potential (moderately limited)	1.00 0.50
73095: Gravois-----	Slightly limited: slope (slightly limited)	0.04	Limited: slope (limited)	0.68	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited) slope (slightly limited)	0.50 0.26 0.15	Slightly limited: seasonal wetness (slightly limited) slope (slightly limited)	0.26 0.15	Very limited: slope (very limited) low strength (moderately limited) seasonal wetness (slightly limited)	1.00 0.50 0.26
73101: Wrengart-----	Not limited		Slightly limited: slope (slightly limited)	0.20	Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: low strength (moderately limited) slope (slightly limited)	0.50 0.15
73112: Gunlock-----	Not limited		Slightly limited: slope (slightly limited)	0.10	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.28	Slightly limited: seasonal wetness (slightly limited)	0.28	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.28

Table 9a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73250: Gatewood-----	Slightly limited: small stones (slightly limited)	0.13	Moderately limited: surface stones (moderately limited) small stones (slightly limited) slope (slightly limited)	0.38 0.13 0.10	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.15	Slightly limited: seasonal wetness (slightly limited)	0.15	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.15
Moko-----	Slightly limited: small stones (slightly limited)	0.13	Very limited: restrictive layer (very limited) surface stones (moderately limited) small stones (slightly limited)	1.00 0.38 0.13	Not limited		Very limited: restrictive layer (very limited)	1.00	Moderately limited: slippage potential (moderately limited)	0.50
73251: Gatewood-----	Slightly limited: small stones (slightly limited)	0.13	Moderately limited: slope (moderately limited) surface stones (moderately limited) small stones (slightly limited)	0.43 0.38 0.13	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.15	Slightly limited: seasonal wetness (slightly limited)	0.15	Limited: slope (limited) low strength (moderately limited) seasonal wetness (slightly limited)	0.68 0.50 0.15
Moko-----	Slightly limited: small stones (slightly limited)	0.13	Very limited: restrictive layer (very limited) slope (moderately limited) surface stones (moderately limited)	1.00 0.43 0.38	Not limited		Very limited: restrictive layer (very limited)	1.00	Limited: slope (limited) slippage potential (moderately limited)	0.68 0.50
73253: Ocie-----	Slightly limited: small stones (slightly limited)	0.04	Slightly limited: small stones (slightly limited)	0.04	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.10	Slightly limited: seasonal wetness (slightly limited)	0.10	Moderately limited: slippage potential (moderately limited) low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.50 0.10

Table 9a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73254: Ocie-----	Slightly limited: small stones (slightly limited)	0.04	Moderately limited: slope (moderately limited) surface stones (moderately limited) small stones (slightly limited)	0.47 0.38 0.04	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.10	Slightly limited: seasonal wetness (slightly limited)	0.10	Limited: slope (limited) slippage potential (moderately limited) low strength (moderately limited)	0.76 0.50 0.50
73255: Ocie-----	Moderately limited: surface stones (moderately limited) small stones (slightly limited) slope (slightly limited)	0.42 0.24 0.01	Limited: surface stones (limited) slope (moderately limited) small stones (slightly limited)	0.79 0.60 0.24	Moderately limited: large surface stones (moderately limited) seasonal wetness (slightly limited) slope (slightly limited)	0.60 0.10 0.05	Moderately limited: large surface stones (moderately limited) seasonal wetness (slightly limited) slope (slightly limited)	0.60 0.10 0.05	Limited: slope (limited) large surface stones (moderately limited) slippage potential (moderately limited)	0.99 0.60 0.50
73256: Arkana-----	Slightly limited: small stones (slightly limited)	0.04	Slightly limited: slope (slightly limited) small stones (slightly limited)	0.10 0.04	Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: low strength (moderately limited)	0.50
73257: Caneyville----	Not limited		Slightly limited: slope (slightly limited)	0.10	Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: slippage potential (moderately limited) low strength (moderately limited)	0.50 0.50
73258: Cotton-----	Moderately limited: seasonal wetness (moderately limited)	0.60	Moderately limited: seasonal wetness (moderately limited)	0.60	Limited: seasonal wetness (limited) low strength (moderately limited)	0.76 0.50	Limited: seasonal wetness (limited)	0.76	Limited: seasonal wetness (limited) low strength (moderately limited)	0.76 0.50
73259: Cotton-----	Moderately limited: seasonal wetness (moderately limited)	0.60	Moderately limited: seasonal wetness (moderately limited) slope (slightly limited)	0.60 0.10	Limited: seasonal wetness (limited) low strength (moderately limited)	0.76 0.50	Limited: seasonal wetness (limited)	0.76	Limited: seasonal wetness (limited) low strength (moderately limited)	0.76 0.50

Table 9a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73260: Maplewood-----	Moderately limited: seasonal wetness (moderately limited)	0.60	Moderately limited: seasonal wetness (moderately limited)	0.60	Limited: seasonal wetness (limited) low strength (moderately limited)	0.62 0.50	Limited: seasonal wetness (limited)	0.62	Limited: seasonal wetness (limited) low strength (moderately limited)	0.62 0.50
73261: Wrengart-----	Not limited		Slightly limited: slope (slightly limited)	0.20	Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: low strength (moderately limited) slope (slightly limited)	0.50 0.15
73262: Wrengart-----	Not limited		Moderately limited: slope (moderately limited)	0.47	Moderately limited: low strength (moderately limited)	0.50	Not limited		Limited: slope (limited) low strength (moderately limited)	0.76 0.50
73263: Wrengart-----	Slightly limited: slope (slightly limited)	0.04	Limited: slope (limited)	0.68	Moderately limited: low strength (moderately limited) slope (slightly limited)	0.50 0.15	Slightly limited: slope (slightly limited)	0.15	Very limited: slope (very limited) low strength (moderately limited)	1.00 0.50
74634: Hartville-----	Not limited		Slightly limited: slope (slightly limited)	0.10	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.29	Slightly limited: seasonal wetness (slightly limited)	0.29	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.29
74659: Deible-----	Moderately limited: seasonal wetness (moderately limited)	0.60	Moderately limited: seasonal wetness (moderately limited)	0.60	Limited: seasonal wetness (limited) low strength (moderately limited)	0.91 0.50	Limited: seasonal wetness (limited)	0.91	Limited: seasonal wetness (limited) flooding (moderately limited) low strength (moderately limited)	0.91 0.60 0.50

Table 9a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74678: Racoon-----	Moderately limited: seasonal wetness (moderately limited)	0.60	Moderately limited: seasonal wetness (moderately limited)	0.60	Limited: seasonal wetness (limited) low strength (moderately limited)	0.91 0.50	Limited: seasonal wetness (limited)	0.91	Limited: seasonal wetness (limited) flooding (moderately limited) low strength (moderately limited)	0.91 0.60 0.50
75376: Cedargap-----	Slightly limited: small stones (slightly limited)	0.03	Slightly limited: small stones (slightly limited)	0.03	Moderately limited: low strength (moderately limited)	0.50	Not limited		Very limited: flooding (very limited) low strength (moderately limited)	1.00 0.50
75387: Hacreek-----	Moderately limited: seasonal wetness (moderately limited)	0.60	Moderately limited: seasonal wetness (moderately limited)	0.60	Limited: seasonal wetness (limited) low strength (moderately limited)	0.62 0.50	Limited: seasonal wetness (limited)	0.62	Limited: seasonal wetness (limited) flooding (moderately limited) low strength (moderately limited)	0.62 0.60 0.50
75399: Jamesfin-----	Not limited		Not limited		Moderately limited: low strength (moderately limited)	0.50	Not limited		Very limited: flooding (very limited) low strength (moderately limited)	1.00 0.50
75415: Jemerson-----	Not limited		Not limited		Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: flooding (moderately limited) low strength (moderately limited)	0.60 0.50
75456: Racket-----	Not limited		Not limited		Moderately limited: low strength (moderately limited)	0.50	Not limited		Very limited: flooding (very limited) low strength (moderately limited)	1.00 0.50

Table 9a.--Forest Management--Continued

Map symbol and soil name	Hand planting		Mechanical planting		Use of harvesting equipment		Mechanical site preparation (surface)		Roads (natural surface)	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75457: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Jamesfin-----	Not limited		Not limited		Moderately limited: low strength (moderately limited)	0.50	Not limited		Moderately limited: flooding (moderately limited) low strength (moderately limited)	0.60 0.50
75458: Tanglenook----	Moderately limited: seasonal wetness (moderately limited) stickiness (surface) (moderately limited)	0.60 0.50	Moderately limited: seasonal wetness (moderately limited) stickiness (surface) (moderately limited)	0.60 0.50	Limited: seasonal wetness (limited) low strength (moderately limited) stickiness (surface) (moderately limited)	0.76 0.50 0.50	Limited: seasonal wetness (limited) stickiness (surface) (moderately limited)	0.76 0.50	Limited: seasonal wetness (limited) flooding (moderately limited) low strength (moderately limited)	0.76 0.60 0.50
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99012: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 9b.--Forest Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15002: McGirk-----	Slightly limited: slope/erodibility (slightly limited)	0.22	Slightly limited: slope/erodibility (slightly limited)	0.05	Limited: low strength (limited) seasonal wetness (limited)	0.80 0.72	Limited: seasonal wetness (limited) low strength (moderately limited)	0.72 0.50	Limited: seasonal wetness (limited)	0.72
60001: Menfro-----	Limited: slope/erodibility (limited)	0.78	Slightly limited: slope/erodibility (slightly limited)	0.17	Limited: low strength (limited)	0.80	Moderately limited: low strength (moderately limited) slope (slightly limited)	0.50 0.15	Not limited	
60003: Menfro-----	Very limited: slope/erodibility (very limited)	1.00	Slightly limited: slope/erodibility (slightly limited)	0.29	Limited: low strength (limited)	0.80	Limited: slope (limited) low strength (moderately limited)	0.76 0.50	Not limited	
60004: Menfro-----	Very limited: slope/erodibility (very limited)	1.00	Moderately limited: slope/erodibility (moderately limited)	0.41	Limited: low strength (limited)	0.80	Very limited: slope (very limited) low strength (moderately limited)	1.00 0.50	Not limited	
60005: Menfro-----	Very limited: slope/erodibility (very limited)	1.00	Limited: slope/erodibility (limited)	0.68	Limited: low strength (limited)	0.80	Very limited: slope (very limited) low strength (moderately limited)	1.00 0.50	Not limited	

Table 9b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60051:										
Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Limited: slope/erodibility (limited)	0.78	Slightly limited: slope/erodibility (slightly limited)	0.14	Limited: low strength (limited)	0.80	Moderately limited: low strength (moderately limited) slope (slightly limited)	0.50 0.15	Not limited	
60052:										
Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Udorthents----	Moderately limited: slope/erodibility (moderately limited)	0.56	Slightly limited: slope/erodibility (slightly limited)	0.18	Not limited		Limited: stickiness (surface) (limited) slope (moderately limited)	0.75 0.45	Very limited: droughty (very limited)	1.00
64002:										
Freeburg-----	Slightly limited: slope/erodibility (slightly limited)	0.22	Slightly limited: slope/erodibility (slightly limited)	0.05	Limited: low strength (limited) seasonal wetness (moderately limited)	0.80 0.34	Moderately limited: low strength (moderately limited) seasonal wetness (moderately limited)	0.50 0.34	Slightly limited: seasonal wetness (slightly limited)	0.11
64007:										
Freeburg-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: low strength (limited) seasonal wetness (moderately limited)	0.80 0.34	Moderately limited: flooding (moderately limited) low strength (moderately limited) seasonal wetness (moderately limited)	0.60 0.50 0.34	Moderately limited: flooding (moderately limited) seasonal wetness (slightly limited)	0.60 0.11
64010:										
Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Slightly limited: slope/erodibility (slightly limited)	0.22	Slightly limited: slope/erodibility (slightly limited)	0.05	Limited: low strength (limited) seasonal wetness (moderately limited)	0.80 0.34	Moderately limited: low strength (moderately limited) seasonal wetness (moderately limited)	0.50 0.34	Slightly limited: seasonal wetness (slightly limited)	0.11

Table 9b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64011: Kliever-----	Moderately limited: slope/erodibility (moderately limited)	0.33	Slightly limited: slope/erodibility (slightly limited)	0.06	Limited: low strength (limited)	0.80	Moderately limited: low strength (moderately limited)	0.50	Not limited	
64012: Kliever-----	Limited: slope/erodibility (limited)	0.78	Slightly limited: slope/erodibility (slightly limited)	0.14	Limited: low strength (limited)	0.80	Moderately limited: low strength (moderately limited) slope (slightly limited)	0.50 0.15	Not limited	
64013: Kliever-----	Very limited: slope/erodibility (very limited)	1.00	Slightly limited: slope/erodibility (slightly limited)	0.24	Limited: low strength (limited)	0.80	Limited: slope (limited) low strength (moderately limited)	0.76 0.50	Not limited	
64014: Kliever-----	Very limited: slope/erodibility (very limited)	1.00	Moderately limited: slope/erodibility (moderately limited)	0.33	Limited: low strength (limited)	0.80	Very limited: slope (very limited) low strength (moderately limited)	1.00 0.50	Not limited	
66000: Moniteau-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: seasonal wetness (limited) low strength (limited)	0.91 0.80	Limited: seasonal wetness (limited) flooding (moderately limited) low strength (moderately limited)	0.91 0.60 0.50	Limited: seasonal wetness (limited) flooding (moderately limited)	0.91 0.60
66004: Dockery-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: low strength (limited) seasonal wetness (slightly limited)	0.80 0.20	Very limited: flooding (very limited) low strength (moderately limited) seasonal wetness (slightly limited)	1.00 0.50 0.20	Limited: flooding (limited)	0.90

Table 9b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66006: Waldron-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: low strength (limited) seasonal wetness (slightly limited)	0.80 0.20	Moderately limited: flooding (moderately limited) stickiness (surface) (moderately limited) low strength (moderately limited)	0.60 0.50 0.50	Moderately limited: flooding (moderately limited)	0.60
66009: Haynie-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: low strength (limited)	0.80	Moderately limited: flooding (moderately limited) low strength (moderately limited)	0.60 0.50	Limited: soil reaction (limited) flooding (moderately limited)	0.61 0.60
66010: Sarpy-----	Slightly limited: slope/erodibility (slightly limited)	0.06	Slightly limited: slope/erodibility (slightly limited)	0.02	Moderately limited: low strength (moderately limited)	0.50	Very limited: flooding (very limited)	1.00	Limited: flooding (limited) droughty (limited)	0.90 0.67
66026: Blake-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: low strength (limited)	0.80	Moderately limited: flooding (moderately limited) low strength (moderately limited)	0.60 0.50	Moderately limited: flooding (moderately limited)	0.60
66027: Haynie-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: low strength (limited)	0.80	Very limited: flooding (very limited) low strength (moderately limited)	1.00 0.50	Limited: flooding (limited)	0.90

Table 9b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66028: Leta-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: low strength (limited) seasonal wetness (slightly limited)	0.80 0.20	Moderately limited: flooding (moderately limited) stickiness (surface) (moderately limited) low strength (moderately limited)	0.60 0.50 0.50	Moderately limited: flooding (moderately limited)	0.60
70023: Eldon-----	Limited: slope/erodibility (limited)	0.67	Slightly limited: slope/erodibility (slightly limited)	0.12	Limited: low strength (limited)	0.80	Moderately limited: low strength (moderately limited)	0.50	Not limited	
70029: Moko-----	Very limited: slope/erodibility (very limited)	1.00	Limited: slope/erodibility (limited)	0.63	Not limited		Very limited: slope (very limited) slippage potential (moderately limited)	1.00 0.50	Very limited: droughty (very limited)	1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
70046: Sacville-----	Moderately limited: slope/erodibility (moderately limited)	0.44	Slightly limited: slope/erodibility (slightly limited)	0.08	Limited: seasonal wetness (limited) low strength (limited)	0.91 0.80	Limited: seasonal wetness (limited) low strength (moderately limited)	0.91 0.50	Limited: seasonal wetness (limited)	0.91
73012: Gravois-----	Limited: slope/erodibility (limited)	0.67	Slightly limited: slope/erodibility (slightly limited)	0.15	Limited: low strength (limited) seasonal wetness (slightly limited)	0.80 0.26	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.26	Not limited	
73035: Gravois-----	Very limited: slope/erodibility (very limited)	1.00	Slightly limited: slope/erodibility (slightly limited)	0.27	Limited: low strength (limited) seasonal wetness (slightly limited)	0.80 0.26	Limited: slope (limited) low strength (moderately limited) seasonal wetness (slightly limited)	0.68 0.50 0.26	Not limited	

Table 9b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73040: Maplewood-----	Moderately limited: slope/erodibility (moderately limited)	0.33	Slightly limited: slope/erodibility (slightly limited)	0.07	Limited: low strength (limited) seasonal wetness (limited)	0.80 0.62	Limited: seasonal wetness (limited) low strength (moderately limited)	0.62 0.50	Limited: seasonal wetness (limited)	0.62
73041: Maplewood-----	Limited: slope/erodibility (limited)	0.78	Slightly limited: slope/erodibility (slightly limited)	0.17	Limited: low strength (limited) seasonal wetness (limited)	0.80 0.62	Limited: seasonal wetness (limited) low strength (moderately limited) slope (slightly limited)	0.62 0.50 0.15	Limited: seasonal wetness (limited)	0.62
73042: Niangua-----	Very limited: slope/erodibility (very limited)	1.00	Limited: slope/erodibility (limited)	0.65	Not limited		Very limited: slope (very limited) large surface stones (moderately limited) surface stones (moderately limited)	1.00 0.60 0.42	Not limited	
Bardley-----	Very limited: slope/erodibility (very limited)	1.00	Limited: slope/erodibility (limited)	0.65	Not limited		Very limited: slope (very limited) large surface stones (moderately limited) surface stones (moderately limited)	1.00 0.60 0.42	Not limited	
73048: Rueter-----	Limited: slope/erodibility (limited)	0.67	Slightly limited: slope/erodibility (slightly limited)	0.12	Limited: low strength (limited)	0.80	Moderately limited: slippage potential (moderately limited) low strength (moderately limited)	0.50 0.50	Slightly limited: soil reaction (slightly limited) droughty (slightly limited)	0.18 0.09

Table 9b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73050: Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited: slope/erodibility (very limited)	1.00	Very limited: slope/erodibility (very limited)	1.00	Not limited		Very limited: slope (very limited) large surface stones (moderately limited) surface stones (moderately limited)	1.00 0.60 0.42	Not limited	
73088: Rueter-----	Very limited: slope/erodibility (very limited)	1.00	Slightly limited: slope/erodibility (slightly limited)	0.24	Not limited		Limited: slope (limited) slippage potential (moderately limited)	0.76 0.50	Slightly limited: droughty (slightly limited) soil reaction (slightly limited)	0.19 0.18
73089: Rueter-----	Very limited: slope/erodibility (very limited)	1.00	Moderately limited: slope/erodibility (moderately limited)	0.49	Not limited		Very limited: slope (very limited) slippage potential (moderately limited)	1.00 0.50	Slightly limited: droughty (slightly limited) soil reaction (slightly limited)	0.19 0.18
73095: Gravois-----	Very limited: slope/erodibility (very limited)	1.00	Moderately limited: slope/erodibility (moderately limited)	0.41	Limited: low strength (limited) seasonal wetness (slightly limited)	0.80 0.26	Very limited: slope (very limited) low strength (moderately limited) seasonal wetness (slightly limited)	1.00 0.50 0.26	Not limited	
73101: Wrengart-----	Limited: slope/erodibility (limited)	0.78	Slightly limited: slope/erodibility (slightly limited)	0.17	Limited: low strength (limited)	0.80	Moderately limited: low strength (moderately limited) slope (slightly limited)	0.50 0.15	Not limited	

Table 9b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73112: Gunlock-----	Limited: slope/erodibility (limited)	0.67	Slightly limited: slope/erodibility (slightly limited)	0.15	Limited: low strength (limited) seasonal wetness (slightly limited)	0.80 0.28	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.28	Not limited	
73250: Gatewood-----	Limited: slope/erodibility (limited)	0.67	Slightly limited: slope/erodibility (slightly limited)	0.12	Limited: low strength (limited) seasonal wetness (slightly limited)	0.80 0.15	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.15	Not limited	
Moko-----	Limited: slope/erodibility (limited)	0.67	Slightly limited: slope/erodibility (slightly limited)	0.12	Moderately limited: low strength (moderately limited)	0.50	Moderately limited: slippage potential (moderately limited)	0.50	Very limited: droughty (very limited)	1.00
73251: Gatewood-----	Very limited: slope/erodibility (very limited)	1.00	Slightly limited: slope/erodibility (slightly limited)	0.22	Limited: low strength (limited) seasonal wetness (slightly limited)	0.80 0.15	Limited: slope (limited) low strength (moderately limited) seasonal wetness (slightly limited)	0.68 0.50 0.15	Not limited	
Moko-----	Very limited: slope/erodibility (very limited)	1.00	Slightly limited: slope/erodibility (slightly limited)	0.22	Moderately limited: low strength (moderately limited)	0.50	Limited: slope (limited) slippage potential (moderately limited)	0.68 0.50	Very limited: droughty (very limited)	1.00
73253: Ocie-----	Moderately limited: slope/erodibility (moderately limited)	0.44	Slightly limited: slope/erodibility (slightly limited)	0.08	Limited: low strength (limited) seasonal wetness (slightly limited)	0.80 0.10	Moderately limited: slippage potential (moderately limited) low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.50 0.10	Not limited	

Table 9b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73254: Ocie-----	Very limited: slope/erodibility (very limited)	1.00	Slightly limited: slope/erodibility (slightly limited)	0.24	Limited: low strength (limited) seasonal wetness (slightly limited)	0.80 0.10	Limited: slope (limited) slippage potential (moderately limited) low strength (moderately limited)	0.76 0.50 0.50	Not limited	
73255: Ocie-----	Limited: slope/erodibility (limited)	0.94	Slightly limited: slope/erodibility (slightly limited)	0.29	Slightly limited: seasonal wetness (slightly limited)	0.10	Limited: slope (limited) large surface stones (moderately limited) slippage potential (moderately limited)	0.99 0.60 0.50	Not limited	
73256: Arkana-----	Limited: slope/erodibility (limited)	0.67	Slightly limited: slope/erodibility (slightly limited)	0.12	Limited: low strength (limited)	0.80	Moderately limited: low strength (moderately limited)	0.50	Not limited	
73257: Caneyville----	Limited: slope/erodibility (limited)	0.67	Slightly limited: slope/erodibility (slightly limited)	0.15	Limited: low strength (limited)	0.80	Moderately limited: slippage potential (moderately limited) low strength (moderately limited)	0.50 0.50	Not limited	
73258: Cotton-----	Slightly limited: slope/erodibility (slightly limited)	0.22	Slightly limited: slope/erodibility (slightly limited)	0.05	Limited: low strength (limited) seasonal wetness (limited)	0.80 0.76	Limited: seasonal wetness (limited) low strength (moderately limited)	0.76 0.50	Limited: seasonal wetness (limited)	0.76
73259: Cotton-----	Limited: slope/erodibility (limited)	0.67	Slightly limited: slope/erodibility (slightly limited)	0.15	Limited: low strength (limited) seasonal wetness (limited)	0.80 0.76	Limited: seasonal wetness (limited) low strength (moderately limited)	0.76 0.50	Limited: seasonal wetness (limited)	0.76

Table 9b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73260: Maplewood-----	Moderately limited: slope/erodibility (moderately limited)	0.33	Slightly limited: slope/erodibility (slightly limited)	0.07	Limited: low strength (limited) seasonal wetness (limited)	0.80 0.62	Limited: seasonal wetness (limited) low strength (moderately limited)	0.62 0.50	Limited: seasonal wetness (limited)	0.62
73261: Wrengart-----	Limited: slope/erodibility (limited)	0.78	Slightly limited: slope/erodibility (slightly limited)	0.17	Limited: low strength (limited)	0.80	Moderately limited: low strength (moderately limited) slope (slightly limited)	0.50 0.15	Not limited	
73262: Wrengart-----	Very limited: slope/erodibility (very limited)	1.00	Slightly limited: slope/erodibility (slightly limited)	0.29	Limited: low strength (limited)	0.80	Limited: slope (limited) low strength (moderately limited)	0.76 0.50	Not limited	
73263: Wrengart-----	Very limited: slope/erodibility (very limited)	1.00	Moderately limited: slope/erodibility (moderately limited)	0.41	Limited: low strength (limited)	0.80	Very limited: slope (very limited) low strength (moderately limited)	1.00 0.50	Not limited	
74634: Hartville-----	Limited: slope/erodibility (limited)	0.67	Slightly limited: slope/erodibility (slightly limited)	0.15	Limited: low strength (limited) seasonal wetness (slightly limited)	0.80 0.29	Moderately limited: low strength (moderately limited) seasonal wetness (slightly limited)	0.50 0.29	Not limited	
74659: Deible-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: seasonal wetness (limited) low strength (limited)	0.91 0.80	Limited: seasonal wetness (limited) flooding (moderately limited) low strength (moderately limited)	0.91 0.60 0.50	Limited: seasonal wetness (limited) flooding (moderately limited)	0.91 0.60

Table 9b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74678: Racoon-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: seasonal wetness (limited) low strength (limited)	0.91 0.80	Limited: seasonal wetness (limited) flooding (moderately limited) low strength (moderately limited)	0.91 0.60 0.50	Limited: seasonal wetness (limited) flooding (moderately limited)	0.91 0.60
75376: Cedargap-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: low strength (limited)	0.80	Very limited: flooding (very limited) low strength (moderately limited)	1.00 0.50	Limited: flooding (limited)	0.90
75387: Hacreek-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: low strength (limited) seasonal wetness (limited)	0.80 0.62	Limited: seasonal wetness (limited) flooding (moderately limited) low strength (moderately limited)	0.62 0.60 0.50	Limited: seasonal wetness (limited) flooding (moderately limited)	0.62 0.60
75399: Jamesfin-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: low strength (limited)	0.80	Very limited: flooding (very limited) low strength (moderately limited)	1.00 0.50	Limited: flooding (limited)	0.90
75415: Jemerson-----	Slightly limited: slope/erodibility (slightly limited)	0.22	Slightly limited: slope/erodibility (slightly limited)	0.05	Limited: low strength (limited)	0.80	Moderately limited: flooding (moderately limited) low strength (moderately limited)	0.60 0.50	Moderately limited: flooding (moderately limited)	0.60
75456: Racket-----	Slightly limited: slope/erodibility (slightly limited)	0.22	Slightly limited: slope/erodibility (slightly limited)	0.04	Limited: low strength (limited)	0.80	Very limited: flooding (very limited) low strength (moderately limited)	1.00 0.50	Limited: flooding (limited)	0.90

Table 9b.--Forest Management--Continued

Map symbol and soil name	Erosion on roads and trails		Off-road or off-trail erosion		Soil rutting		Log landings		Seedling survival	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75457: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Jamesfin-----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: low strength (limited)	0.80	Moderately limited: flooding (moderately limited) low strength (moderately limited)	0.60 0.50	Moderately limited: flooding (moderately limited)	0.60
75458: Tanglenook----	Slightly limited: slope/erodibility (slightly limited)	0.11	Slightly limited: slope/erodibility (slightly limited)	0.02	Limited: low strength (limited) seasonal wetness (limited)	0.80 0.76	Limited: seasonal wetness (limited) flooding (moderately limited) low strength (moderately limited)	0.76 0.60 0.50	Limited: seasonal wetness (limited) flooding (moderately limited)	0.76 0.60
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99012: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 10.--Windbreaks and Environmental Plantings

(Only the soils suitable for windbreaks and environmental plantings are listed. Absence of an entry indicates that trees generally do not grow to the given height.)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
15002: McGirk-----	Fragrant sumac, ninebark.	Amur maple, gray dogwood, possumhaw.	Eastern redcedar----	Austrian pine, common hackberry, honeylocust, Norway spruce, pin oak.	---
60001: Menfro-----	Fragrant sumac-----	American plum, gray dogwood, southern arrowwood.	Eastern redbud, eastern redcedar, Washington hawthorn.	Green ash, northern red oak, tuliptree, white fir.	Eastern white pine.
60003: Menfro-----	Fragrant sumac-----	American plum, gray dogwood, southern arrowwood.	Eastern redbud, eastern redcedar, Washington hawthorn.	Green ash, northern red oak, tuliptree, white fir.	Eastern white pine.
60004: Menfro-----	Fragrant sumac-----	American plum, southern arrowwood, gray dogwood.	Washington hawthorn, eastern redbud, eastern redcedar.	Northern red oak, green ash, tuliptree, white fir.	Eastern white pine.
60005: Menfro-----	Fragrant sumac-----	American plum, gray dogwood, southern arrowwood.	Eastern redbud, eastern redcedar, Washington hawthorn.	Green ash, northern red oak, tuliptree, white fir.	Eastern white pine.
60051: Urban land.					
Harvester-----	Fragrant sumac-----	American plum, gray dogwood, southern arrowwood.	Eastern redbud, eastern redcedar, Washington hawthorn.	Green ash, northern red oak, tuliptree, white fir.	Eastern white pine.
64002: Freeburg-----	American plum, fragrant sumac.	Blackhaw, gray dogwood.	Eastern redcedar, nannyberry, Washington hawthorn.	Baldcypress, green ash, sweetgum.	Eastern white pine, pin oak.

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
64007: Freeburg-----	American plum, fragrant sumac.	Blackhaw, gray dogwood.	Eastern redcedar, nannyberry, Washington hawthorn.	Baldcypress, green ash, sweetgum.	Eastern white pine, pin oak.
64010: Urban land.					
Freeburg-----	American plum, fragrant sumac.	Blackhaw, gray dogwood.	Eastern redcedar, nannyberry, Washington hawthorn.	Baldcypress, green ash, sweetgum.	Eastern white pine, pin oak.
66000: Moniteau-----	Buttonbush-----	Possumhaw-----	Eastern arborvitae, eastern redcedar, nannyberry.	Baldcypress, common hackberry, pin oak.	Eastern cottonwood.
66010: Sarpy-----	American plum, common lilac, fragrant sumac, gray dogwood.	Autumn-olive, Washington hawthorn.	Blackjack oak, eastern redcedar, jack pine.	Eastern cottonwood--	---
66026: Blake-----	American plum, blackhaw.	Possumhaw-----	Eastern arborvitae, eastern redcedar, nannyberry, Washington hawthorn, white spruce.	Bur oak, common hackberry, green ash.	---
66028: Leta-----	American plum, blackhaw.	Possumhaw-----	Eastern arborvitae, eastern redcedar, nannyberry, Washington hawthorn, white spruce.	Bur oak, common hackberry, green ash.	---
70023: Eldon-----	Common lilac, fragrant sumac.	American plum, gray dogwood.	Austrian pine, bur oak, common hackberry, eastern redcedar, green ash, honeylocust.	Shortleaf pine-----	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
70046: Sacville-----	American cranberrybush, common lilac, fragrant sumac.	Amur maple, gray dogwood.	Common hackberry, eastern redcedar, green ash.	Austrian pine, pin oak, shortleaf pine.	---
73012: Gravois-----	Common lilac, fragrant sumac.	Amur maple, gray dogwood.	Common hackberry, eastern redcedar.	Eastern white pine, green ash, honeylocust, Norway spruce, pin oak.	---
73035: Gravois-----	Common lilac, fragrant sumac.	Amur maple, gray dogwood.	Common hackberry, eastern redcedar.	Eastern white pine, green ash, honeylocust, Norway spruce, pin oak.	---
73040: Maplewood-----	Fragrant sumac, ninebark.	Amur maple, gray dogwood, possumhaw.	Eastern redcedar----	Austrian pine, common hackberry, honeylocust, Norway spruce, pin oak.	---
73041: Maplewood-----	Fragrant sumac, ninebark.	Amur maple, gray dogwood, possumhaw.	Eastern redcedar----	Austrian pine, common hackberry, honeylocust, Norway spruce, pin oak.	---
73042: Niangua-----	Common lilac, fragrant sumac.	American plum, gray dogwood.	Austrian pine, bur oak, common hackberry, eastern redcedar, green ash, honeylocust.	Shortleaf pine-----	---
Bardley-----	Common lilac, fragrant sumac.	American plum, gray dogwood.	Austrian pine, bur oak, common hackberry, eastern redcedar, green ash, honeylocust.	Shortleaf pine-----	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
73048: Rueter-----	Common lilac, fragrant sumac.	American plum, autumn-olive, gray dogwood.	Austrian pine, bur oak, common hackberry, eastern redcedar, green ash, honeylocust.	Shortleaf pine-----	---
73050: Rock outcrop.					
Bardley-----	Common lilac, fragrant sumac.	American plum, gray dogwood.	Austrian pine, bur oak, common hackberry, eastern redcedar, green ash, honeylocust.	Shortleaf pine-----	---
73088: Rueter-----	Common lilac, fragrant sumac.	American plum, gray dogwood.	Austrian pine, bur oak, common hackberry, eastern redcedar, green ash, honeylocust.	Shortleaf pine-----	---
73089: Rueter-----	Common lilac, fragrant sumac.	American plum, gray dogwood.	Austrian pine, bur oak, common hackberry, eastern redcedar, green ash, honeylocust.	Shortleaf pine-----	---
73095: Gravois-----	Common lilac, fragrant sumac.	Amur maple, gray dogwood.	Common hackberry, eastern redcedar.	Eastern white pine, green ash, honeylocust, Norway spruce, pin oak.	---
73112: Gunlock-----	Common lilac, fragrant sumac.	Amur maple, gray dogwood.	Common hackberry, eastern redcedar.	Eastern white pine, green ash, honeylocust, Norway spruce, pin oak.	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
73250: Gatewood-----	Common lilac, fragrant sumac.	American plum, gray dogwood.	Austrian pine, bur oak, common hackberry, eastern redcedar, green ash, honeylocust.	---	---
Moko.					
73251: Gatewood-----	Common lilac, fragrant sumac.	American plum, gray dogwood.	Austrian pine, bur oak, common hackberry, eastern redcedar, green ash, honeylocust.	---	---
Moko.					
73253: Ocie-----	Common lilac, fragrant sumac.	Amur maple, gray dogwood.	Common hackberry, eastern redcedar.	Eastern white pine, green ash, honeylocust, Norway spruce, pin oak.	---
73254: Ocie-----	Common lilac, fragrant sumac.	Amur maple, gray dogwood.	Common hackberry, eastern redcedar.	Eastern white pine, green ash, honeylocust, Norway spruce, pin oak.	---
73255: Ocie-----	Common lilac, fragrant sumac.	Amur maple, gray dogwood.	Common hackberry, eastern redcedar.	Eastern white pine, green ash, honeylocust, Norway spruce, pin oak.	---
73256: Arkana-----	Common lilac, fragrant sumac.	American plum, gray dogwood.	Austrian pine, bur oak, common hackberry, eastern redcedar, green ash, honeylocust.	---	---
73258: Cotton-----	Fragrant sumac, ninebark.	Amur maple, gray dogwood, possumhaw.	Eastern redcedar----	Austrian pine, common hackberry, honeylocust, Norway spruce, pin oak.	---

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
73259: Cotton-----	Fragrant sumac, ninebark.	Amur maple, gray dogwood, possumhaw.	Eastern redcedar----	Austrian pine, common hackberry, honeylocust, Norway spruce, pin oak.	---
73260: Maplewood-----	Fragrant sumac, ninebark.	Amur maple, gray dogwood, possumhaw.	Eastern redcedar----	Austrian pine, common hackberry, honeylocust, Norway spruce, pin oak.	---
73263: Wrengart-----	Common lilac, fragrant sumac.	Amur maple, gray dogwood.	Common hackberry, eastern redcedar.	Eastern white pine, green ash, honeylocust, Norway spruce, pin oak.	---
74634: Hartville-----	Common lilac, fragrant sumac.	American plum, gray dogwood.	Austrian pine, bur oak, common hackberry, eastern redcedar, green ash, honeylocust.	---	---
74659: Deible-----	American plum, fragrant sumac.	Blackhaw, gray dogwood.	Eastern redcedar, nannyberry, Washington hawthorn.	Baldcypress, green ash, sweetgum.	Eastern white pine, pin oak.
74678: Raccoon-----	Buttonbush-----	Possumhaw-----	Eastern arborvitae, eastern redcedar, nannyberry.	Baldcypress, common hackberry, pin oak.	Eastern cottonwood.
75376: Cedargap-----	Common lilac, fragrant sumac.	American plum, gray dogwood.	Austrian pine, bur oak, common hackberry, eastern redcedar, green ash, honeylocust.	Shortleaf pine-----	---
75387: Hacreek-----	American plum, fragrant sumac, silky dogwood.	Blackhaw, gray dogwood.	Eastern arborvitae, Washington hawthorn.	Baldcypress, green ash, sweetgum.	Eastern white pine, pin oak.

Table 10.--Windbreaks and Environmental Plantings--Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
75399: Jamesfin-----	American plum, fragrant sumac.	Blackhaw, gray dogwood.	Eastern redcedar, nannyberry, Washington hawthorn.	Baldcypress, green ash, sweetgum.	Eastern white pine, pin oak.
75415: Jemerson-----	American plum, fragrant sumac.	Blackhaw, gray dogwood.	Eastern redcedar, nannyberry, Washington hawthorn.	Baldcypress, green ash, sweetgum.	Eastern white pine, pin oak.
75456: Racket-----	American plum, fragrant sumac.	Blackhaw, gray dogwood.	Eastern redcedar, nannyberry, Washington hawthorn.	Baldcypress, green ash, sweetgum.	Eastern white pine, pin oak.

Table 11.--Recreational Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15002: McGirk-----	Very limited: wetness (very limited) percs slowly (moderately limited)	1.00 0.39	Very limited: wetness (very limited) percs slowly (moderately limited)	1.00 0.39	Very limited: wetness (very limited) percs slowly (moderately limited)	1.00 0.39	Very limited: wetness (very limited)	1.00
60001: Menfro-----	Not limited		Not limited		Very limited: slope (very limited)	1.00	Not limited	
60003: Menfro-----	Limited: slope (limited)	0.63	Limited: slope (limited)	0.63	Very limited: slope (very limited)	1.00	Not limited	
60004: Menfro-----	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Slightly limited: slope (slightly limited)	0.25
60005: Menfro-----	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00
60051: Urban land-----	Not rated		Not rated		Not rated		Not rated	
Harvester-----	Slightly limited: percs slowly (slightly limited)	0.19	Slightly limited: percs slowly (slightly limited)	0.19	Very limited: slope (very limited) percs slowly (slightly limited)	1.00 0.19	Not limited	

Table 11.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60052: Urban land-----	Not rated		Not rated		Not rated		Not rated	
Udorthents-----	Very limited: too clayey (very limited) large stones (limited) percs slowly (moderately limited)	1.00 0.68 0.39	Very limited: too clayey (very limited) large stones (limited) percs slowly (moderately limited)	1.00 0.68 0.39	Very limited: large stones >25% (very limited) too clayey (very limited) slope (very limited)	1.00 1.00 1.00	Very limited: too clayey (very limited) large stones (limited)	1.00 0.68
64002: Freeburg-----	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Limited: wetness (limited) percs slowly (slightly limited)	0.68 0.13	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Limited: wetness (limited)	0.68
64007: Freeburg-----	Very limited: flooding (very limited) wetness (very limited) percs slowly (slightly limited)	1.00 1.00 0.13	Limited: wetness (limited) percs slowly (slightly limited)	0.68 0.13	Very limited: wetness (very limited) flooding (moderately limited) percs slowly (slightly limited)	1.00 0.60 0.13	Limited: wetness (limited)	0.68
64010: Urban land-----	Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Very limited: wetness (very limited) flooding (rare) (limited) percs slowly (slightly limited)	1.00 0.90 0.13	Limited: wetness (limited) percs slowly (slightly limited)	0.68 0.13	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Limited: wetness (limited)	0.68
64011: Kliever-----	Not limited		Not limited		Slightly limited: slope (slightly limited)	0.10	Not limited	

Table 11.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64012: Kliever-----	Not limited		Not limited		Very limited: slope (very limited)	1.00	Not limited	
64013: Kliever-----	Limited: slope (limited)	0.63	Limited: slope (limited)	0.63	Very limited: slope (very limited)	1.00	Not limited	
64014: Kliever-----	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Slightly limited: slope (slightly limited)	0.25
66000: Moniteau-----	Very limited: flooding (very limited) wetness (very limited) percs slowly (slightly limited)	1.00 1.00 0.13	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: wetness (very limited) flooding (moderately limited) percs slowly (slightly limited)	1.00 0.60 0.13	Very limited: wetness (very limited)	1.00
66004: Dockery-----	Very limited: flooding (very limited) wetness (moderately limited)	1.00 0.50	Moderately limited: flooding (moderately limited) wetness (slightly limited)	0.60 0.28	Very limited: flooding (very limited) wetness (moderately limited)	1.00 0.50	Moderately limited: flooding (moderately limited) wetness (slightly limited)	0.60 0.28
66006: Waldron-----	Very limited: flooding (very limited) too clayey (moderately limited) wetness (moderately limited)	1.00 0.60 0.50	Moderately limited: too clayey (moderately limited) percs slowly (moderately limited) wetness (slightly limited)	0.60 0.39 0.28	Moderately limited: too clayey (moderately limited) flooding (moderately limited) wetness (moderately limited)	0.60 0.60 0.50	Moderately limited: too clayey (moderately limited) wetness (slightly limited)	0.60 0.28
66009: Haynie-----	Very limited: flooding (very limited)	1.00	Not limited		Moderately limited: flooding (moderately limited)	0.60	Not limited	

Table 11.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66010: Sarpy-----	Very limited: flooding (very limited) too sandy (very limited)	1.00 1.00	Very limited: too sandy (very limited) flooding (moderately limited)	1.00 0.60	Very limited: flooding (very limited) too sandy (very limited)	1.00 1.00	Very limited: too sandy (very limited) flooding (moderately limited)	1.00 0.60
66026: Blake-----	Very limited: flooding (very limited)	1.00	Not limited		Moderately limited: flooding (moderately limited)	0.60	Not limited	
66027: Haynie-----	Very limited: flooding (very limited)	1.00	Moderately limited: flooding (moderately limited)	0.60	Very limited: flooding (very limited)	1.00	Moderately limited: flooding (moderately limited)	0.60
66028: Leta-----	Very limited: flooding (very limited) too clayey (moderately limited) wetness (moderately limited)	1.00 0.60 0.50	Moderately limited: too clayey (moderately limited) percs slowly (moderately limited) wetness (slightly limited)	0.60 0.39 0.28	Moderately limited: too clayey (moderately limited) flooding (moderately limited) wetness (moderately limited)	0.60 0.60 0.50	Moderately limited: too clayey (moderately limited) wetness (slightly limited)	0.60 0.28
70023: Eldon-----	Slightly limited: percs slowly (slightly limited)	0.13	Slightly limited: percs slowly (slightly limited)	0.13	Limited: slope (limited) small stones (moderately limited) percs slowly (slightly limited)	0.98 0.60 0.13	Not limited	
70029: Moko-----	Very limited: slope (very limited) shallow to bedrock (limited) large surface stones (limited)	1.00 0.90 0.79	Very limited: slope (very limited) shallow to bedrock (limited) large surface stones (limited)	1.00 0.90 0.79	Very limited: slope (very limited) shallow to bedrock (very limited) small stones (very limited)	1.00 1.00 1.00	Very limited: slope (very limited) large surface stones (limited) too clayey (moderately limited)	1.00 0.79 0.60
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	

Table 11.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70046: Sacville-----	Very limited: wetness (very limited) percs slowly (moderately limited)	1.00 0.39	Very limited: wetness (very limited) percs slowly (moderately limited)	1.00 0.39	Very limited: wetness (very limited) slope (moderately limited) percs slowly (moderately limited)	1.00 0.40 0.39	Very limited: wetness (very limited)	1.00
73012: Gravois-----	Limited: wetness (limited) percs slowly (moderately limited)	0.81 0.39	Moderately limited: wetness (moderately limited) percs slowly (moderately limited)	0.49 0.39	Limited: slope (limited) wetness (limited) percs slowly (moderately limited)	0.98 0.81 0.39	Moderately limited: wetness (moderately limited)	0.49
73035: Gravois-----	Limited: wetness (limited) percs slowly (moderately limited) slope (moderately limited)	0.81 0.39 0.37	Moderately limited: wetness (moderately limited) percs slowly (moderately limited) slope (moderately limited)	0.49 0.39 0.37	Very limited: slope (very limited) wetness (limited) percs slowly (moderately limited)	1.00 0.81 0.39	Moderately limited: wetness (moderately limited)	0.49
73040: Maplewood-----	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: wetness (very limited) percs slowly (slightly limited) slope (slightly limited)	1.00 0.13 0.10	Very limited: wetness (very limited)	1.00
73041: Maplewood-----	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: slope (very limited) wetness (very limited) percs slowly (slightly limited)	1.00 1.00 0.13	Very limited: wetness (very limited)	1.00

Table 11.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73042:								
Niangua-----	Very limited: slope (very limited) large surface stones (very limited) small stones (very limited)	1.00 1.00 1.00 1.00	Very limited: slope (very limited) large surface stones (very limited) small stones (very limited)	1.00 1.00 1.00 1.00	Very limited: small stones (very limited) slope (very limited) percs slowly (slightly limited)	1.00 1.00 1.00 0.13	Very limited: large surface stones (very limited) slope (very limited) small stones (slightly limited)	1.00 1.00 1.00 0.30
Bardley-----	Very limited: slope (very limited) large surface stones (very limited) small stones (limited)	1.00 1.00 1.00 1.00	Very limited: slope (very limited) large surface stones (very limited) small stones (limited)	1.00 1.00 1.00 1.00	Very limited: small stones (very limited) slope (very limited) depth to bedrock (moderately limited)	1.00 1.00 1.00 0.46	Very limited: large surface stones (very limited) slope (very limited) small stones (slightly limited)	1.00 1.00 1.00 0.01
73048:								
Rueter-----	Limited: small stones (limited) too acid (limited)	0.82 0.71	Limited: small stones (limited) too acid (limited)	0.82 0.71	Very limited: small stones (very limited) slope (limited) too acid (limited)	1.00 0.98 0.71	Not limited	
73050:								
Rock outcrop-----	Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited: slope (very limited) large surface stones (very limited) small stones (limited)	1.00 1.00 1.00 1.00	Very limited: slope (very limited) large surface stones (very limited) small stones (limited)	1.00 1.00 1.00 1.00	Very limited: small stones (very limited) slope (very limited) depth to bedrock (moderately limited)	1.00 1.00 1.00 0.46	Very limited: slope (very limited) large surface stones (very limited) small stones (slightly limited)	1.00 1.00 1.00 0.01
73088:								
Rueter-----	Very limited: small stones (very limited) large surface stones (limited) too acid (limited)	1.00 0.79 0.71	Very limited: small stones (very limited) large surface stones (limited) too acid (limited)	1.00 0.79 0.71	Very limited: small stones (very limited) slope (very limited) too acid (limited)	1.00 1.00 0.71	Limited: large surface stones (limited) small stones (moderately limited)	0.79 0.49

Table 11.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73089: Rueter-----	Very limited: slope (very limited) small stones (very limited) large surface stones (limited)	1.00 1.00 0.79	Very limited: slope (very limited) small stones (very limited) large surface stones (limited)	1.00 1.00 0.79	Very limited: small stones (very limited) slope (very limited) too acid (limited)	1.00 1.00 0.71	Limited: slope (limited) large surface stones (limited) small stones (moderately limited)	0.92 0.79 0.49
73095: Gravois-----	Very limited: slope (very limited) wetness (limited) percs slowly (moderately limited)	1.00 0.81 0.39	Very limited: slope (very limited) wetness (moderately limited) percs slowly (moderately limited)	1.00 0.49 0.39	Very limited: slope (very limited) wetness (limited) percs slowly (moderately limited)	1.00 0.81 0.39	Moderately limited: wetness (moderately limited) slope (slightly limited)	0.49 0.25
73101: Wrengart-----	Not limited		Not limited		Very limited: slope (very limited)	1.00	Not limited	
73112: Gunlock-----	Limited: wetness (limited) percs slowly (slightly limited)	0.90 0.13	Moderately limited: wetness (moderately limited) percs slowly (slightly limited)	0.56 0.13	Limited: slope (limited) wetness (limited) percs slowly (slightly limited)	0.98 0.90 0.13	Moderately limited: wetness (moderately limited)	0.56
73250: Gatewood-----	Limited: large surface stones (limited) small stones (limited) percs slowly (moderately limited)	0.70 0.64 0.40	Limited: large surface stones (limited) small stones (limited) percs slowly (moderately limited)	0.70 0.64 0.40	Very limited: small stones (very limited) slope (limited) depth to bedrock (limited)	1.00 0.98 0.66	Limited: large surface stones (limited) wetness (slightly limited)	0.70 0.13

Table 11.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73250: Moko-----	Limited: shallow to bedrock (limited) large surface stones (limited) small stones (limited)	0.90 0.70 0.64	Limited: shallow to bedrock (limited) large surface stones (limited) small stones (limited)	0.90 0.70 0.64	Very limited: shallow to bedrock (very limited) small stones (very limited) slope (limited)	1.00 1.00 0.98	Limited: large surface stones (limited)	0.70
73251: Gatewood-----	Limited: large surface stones (limited) small stones (limited) percs slowly (moderately limited)	0.70 0.64 0.40	Limited: large surface stones (limited) small stones (limited) percs slowly (moderately limited)	0.70 0.64 0.40	Very limited: slope (very limited) small stones (very limited) depth to bedrock (limited)	1.00 1.00 0.66	Limited: large surface stones (limited) wetness (slightly limited)	0.70 0.13
Moko-----	Limited: shallow to bedrock (limited) large surface stones (limited) small stones (limited)	0.90 0.70 0.64	Limited: shallow to bedrock (limited) large surface stones (limited) small stones (limited)	0.90 0.70 0.64	Very limited: slope (very limited) shallow to bedrock (very limited) small stones (very limited)	1.00 1.00	Limited: large surface stones (limited)	0.70
73253: Ocie-----	Moderately limited: percs slowly (moderately limited) small stones (moderately limited)	0.39 0.33	Moderately limited: percs slowly (moderately limited) small stones (moderately limited)	0.39 0.33	Very limited: small stones (very limited) slope (moderately limited) percs slowly (moderately limited)	1.00 0.40 0.39	Not limited	
73254: Ocie-----	Limited: large surface stones (limited) slope (limited) percs slowly (moderately limited)	0.70 0.63 0.39	Limited: large surface stones (limited) slope (limited) percs slowly (moderately limited)	0.70 0.63 0.39	Very limited: slope (very limited) small stones (very limited) percs slowly (moderately limited)	1.00 1.00 0.39	Limited: large surface stones (limited)	0.70

Table 11.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73255: Ocie-----	Very limited: slope (very limited) large surface stones (very limited) small stones (limited)	1.00 1.00 1.00	Very limited: slope (very limited) large surface stones (very limited) small stones (limited)	1.00 1.00 1.00	Very limited: small stones (very limited) slope (very limited) percs slowly (moderately limited)	1.00 1.00 0.39	Very limited: large surface stones (very limited) slope (slightly limited) small stones (slightly limited)	1.00 0.08 0.01
73256: Arkana-----	Moderately limited: percs slowly (moderately limited) small stones (moderately limited)	0.39 0.33	Moderately limited: percs slowly (moderately limited) small stones (moderately limited)	0.39 0.33	Very limited: small stones (very limited) slope (limited) percs slowly (moderately limited)	1.00 0.98 0.39	Not limited	
73257: Caneyville-----	Slightly limited: percs slowly (slightly limited)	0.13	Slightly limited: percs slowly (slightly limited)	0.13	Limited: slope (limited) percs slowly (slightly limited) depth to bedrock (slightly limited)	0.98 0.13 0.13	Not limited	
73258: Cotton-----	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: wetness (very limited)	1.00
73259: Cotton-----	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: wetness (very limited) slope (limited) percs slowly (slightly limited)	1.00 0.98 0.13	Very limited: wetness (very limited)	1.00

Table 11.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73260: Maplewood-----	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: wetness (very limited) percs slowly (slightly limited) slope (slightly limited)	1.00 0.13 0.10	Very limited: wetness (very limited)	1.00
73261: Wrengart-----	Not limited		Not limited		Very limited: slope (very limited)	1.00	Not limited	
73262: Wrengart-----	Limited: slope (limited)	0.63	Limited: slope (limited)	0.63	Very limited: slope (very limited)	1.00	Not limited	
73263: Wrengart-----	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Slightly limited: slope (slightly limited)	0.25
74634: Hartville-----	Limited: wetness (limited) percs slowly (moderately limited)	0.96 0.39	Limited: wetness (limited) percs slowly (moderately limited)	0.61 0.39	Limited: slope (limited) wetness (limited) percs slowly (moderately limited)	0.98 0.96 0.39	Limited: wetness (limited)	0.61
74659: Deible-----	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) flooding (moderately limited)	1.00 0.60	Very limited: wetness (very limited)	1.00

Table 11.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74678: Racoon-----	Very limited: flooding (very limited) wetness (very limited) percs slowly (moderately limited)	1.00 1.00 0.39	Very limited: wetness (very limited) percs slowly (moderately limited)	1.00 0.39	Very limited: wetness (very limited) flooding (moderately limited) percs slowly (moderately limited)	1.00 0.60 0.39	Very limited: wetness (very limited)	1.00
75376: Cedargap-----	Very limited: flooding (very limited) small stones (slightly limited)	1.00 0.27	Moderately limited: flooding (moderately limited) small stones (slightly limited)	0.60 0.27	Very limited: flooding (very limited) small stones (very limited) large stones (slightly limited)	1.00 1.00 0.01	Moderately limited: flooding (moderately limited)	0.60
75387: Hacreek-----	Very limited: flooding (very limited) wetness (very limited) percs slowly (slightly limited)	1.00 1.00 0.13	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: wetness (very limited) flooding (moderately limited) percs slowly (slightly limited)	1.00 0.60 0.13	Very limited: wetness (very limited)	1.00
75399: Jamesfin-----	Very limited: flooding (very limited)	1.00	Moderately limited: flooding (moderately limited)	0.60	Very limited: flooding (very limited)	1.00	Moderately limited: flooding (moderately limited)	0.60
75415: Jemerson-----	Very limited: flooding (very limited)	1.00	Not limited		Moderately limited: flooding (moderately limited)	0.60	Not limited	
75456: Racket-----	Very limited: flooding (very limited)	1.00	Moderately limited: flooding (moderately limited)	0.60	Very limited: flooding (very limited)	1.00	Moderately limited: flooding (moderately limited)	0.60

Table 11.--Recreational Site Development--Continued

Map symbol and soil name	Camp areas		Picnic areas		Playgrounds		Paths and trails	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75457: Urban land-----	Not rated		Not rated		Not rated		Not rated	
Jamesfin-----	Very limited: flooding (very limited)	1.00	Not limited		Moderately limited: flooding (moderately limited)	0.60	Not limited	
75458: Tanglenook-----	Very limited: flooding (very limited) wetness (very limited) too clayey (moderately limited)	1.00 1.00 0.60	Very limited: wetness (very limited) too clayey (moderately limited) percs slowly (moderately limited)	1.00 0.60 0.39	Very limited: wetness (very limited) too clayey (moderately limited) flooding (moderately limited)	1.00 0.60 0.60	Very limited: wetness (very limited) too clayey (moderately limited)	1.00 0.60
99000: Pits, quarries----	Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated	
99012: Urban land-----	Not rated		Not rated		Not rated		Not rated	

Table 12a.--Wildlife Habitat

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15002: McGirk-----	Very limited: wetness (very limited) moderate erodibility (moderately limited) percs slowly (moderately limited)	1.00 0.50 0.39	Very limited: wetness (very limited) moderate erodibility (moderately limited) percs slowly (moderately limited)	1.00 0.50 0.39	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00
60001: Menfro-----	Limited: high erodibility (limited)	0.80	Limited: high erodibility (limited)	0.80	Not limited		Not limited		Not limited	
60003: Menfro-----	Limited: high erodibility (limited)	0.80	Limited: high erodibility (limited)	0.80	Not limited		Not limited		Not limited	
60004: Menfro-----	Limited: high erodibility (limited) slope (slightly limited)	0.80 0.15	Limited: high erodibility (limited) slope (slightly limited)	0.80 0.15	Not limited		Not limited		Not limited	
60005: Menfro-----	Limited: high erodibility (limited) slope (limited)	0.80 0.72	Limited: high erodibility (limited) slope (limited)	0.80 0.72	Not limited		Not limited		Not limited	

Table 12a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60051: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Limited: high erodibility (limited) percs slowly (slightly limited) wetness (slightly limited)	0.80 0.19 0.09	Limited: high erodibility (limited) percs slowly (slightly limited) wetness (slightly limited)	0.80 0.19 0.09	Slightly limited: wetness (slightly limited)	0.09	Slightly limited: wetness (slightly limited)	0.09	Moderately limited: wetness (moderately limited)	0.35
60052: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Udorthents-----	Very limited: droughty (very limited) large stones >35% (very limited) too clayey (limited)	1.00 1.00 0.90	Very limited: droughty (very limited) large stones >35% (very limited) too clayey (limited)	1.00 1.00 0.90	Very limited: droughty (very limited) too clayey (limited) large stones (limited)	1.00 0.90 0.68	Very limited: droughty (very limited) too clayey (limited) large stones (limited)	1.00 0.90 0.68	Very limited: droughty (very limited) large stones (limited) wetness (moderately limited)	1.00 0.68 0.35
64002: Freeburg-----	Limited: wetness (limited) moderate erodibility (moderately limited) percs slowly (slightly limited)	0.68 0.50 0.13	Limited: wetness (limited) moderate erodibility (moderately limited) percs slowly (slightly limited)	0.68 0.50 0.13	Limited: wetness (limited)	0.68	Limited: wetness (limited)	0.68	Very limited: wetness (very limited)	1.00
64007: Freeburg-----	Limited: wetness (limited) flooding (moderately limited) percs slowly (slightly limited)	0.68 0.60 0.13	Limited: wetness (limited) flooding (moderately limited) percs slowly (slightly limited)	0.68 0.60 0.13	Limited: wetness (limited)	0.68	Limited: wetness (limited)	0.68	Very limited: wetness (very limited)	1.00

Table 12a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64010: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Limited: wetness (limited) percs slowly (slightly limited)	0.68 0.13	Limited: wetness (limited) percs slowly (slightly limited)	0.68 0.13	Limited: wetness (limited)	0.68	Limited: wetness (limited)	0.68	Very limited: wetness (very limited)	1.00
64011: Kliever-----	Not limited		Not limited		Not limited		Not limited		Not limited	
64012: Kliever-----	Limited: high erodibility (limited)	0.80	Limited: high erodibility (limited)	0.80	Not limited		Not limited		Not limited	
64013: Kliever-----	Limited: high erodibility (limited)	0.80	Limited: high erodibility (limited)	0.80	Not limited		Not limited		Not limited	
64014: Kliever-----	Limited: high erodibility (limited) slope (slightly limited)	0.80 0.15	Limited: high erodibility (limited) slope (slightly limited)	0.80 0.15	Not limited		Not limited		Not limited	
66000: Moniteau-----	Very limited: wetness (very limited) flooding (moderately limited) percs slowly (slightly limited)	1.00 0.60 0.13	Very limited: wetness (very limited) flooding (moderately limited) percs slowly (slightly limited)	1.00 0.60 0.13	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00
66004: Dockery-----	Limited: flooding (limited) wetness (moderately limited)	0.90 0.44	Limited: flooding (limited) wetness (moderately limited)	0.90 0.44	Moderately limited: wetness (moderately limited)	0.44	Moderately limited: wetness (moderately limited)	0.44	Moderately limited: wetness (moderately limited)	0.59

Table 12a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66006: Waldron-----	Moderately limited: flooding (moderately limited) wetness (moderately limited) percs slowly (moderately limited)	0.60 0.44 0.39	Moderately limited: flooding (moderately limited) wetness (moderately limited) percs slowly (moderately limited)	0.60 0.44 0.39	Moderately limited: wetness (moderately limited) flooding (prolonged) (slightly limited) too clayey (slightly limited)	0.44 0.20 0.08	Moderately limited: wetness (moderately limited) flooding (prolonged) (slightly limited) too clayey (slightly limited)	0.44 0.20 0.08	Moderately limited: wetness (moderately limited) flooding (prolonged) (slightly limited)	0.59 0.20
66009: Haynie-----	Moderately limited: flooding (moderately limited)	0.60	Moderately limited: flooding (moderately limited)	0.60	Slightly limited: flooding (prolonged) (slightly limited)	0.20	Slightly limited: flooding (prolonged) (slightly limited)	0.20	Slightly limited: flooding (prolonged) (slightly limited)	0.20
66010: Sarpy-----	Very limited: too sandy (very limited) droughty (very limited) flooding (limited)	1.00 1.00 0.90	Very limited: too sandy (very limited) flooding (limited) droughty (limited)	1.00 0.90 0.69	Very limited: too sandy (very limited) droughty (limited) flooding (prolonged) (slightly limited)	1.00 0.69 0.20	Very limited: too sandy (very limited) droughty (limited) flooding (prolonged) (slightly limited)	1.00 0.69 0.20	Limited: droughty (limited) flooding (prolonged) (slightly limited)	0.69 0.20
66026: Blake-----	Moderately limited: flooding (moderately limited)	0.60	Moderately limited: flooding (moderately limited)	0.60	Slightly limited: flooding (prolonged) (slightly limited)	0.20	Slightly limited: flooding (prolonged) (slightly limited)	0.20	Slightly limited: wetness (slightly limited) flooding (prolonged) (slightly limited)	0.29 0.20
66027: Haynie-----	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Slightly limited: flooding (prolonged) (slightly limited)	0.20	Slightly limited: flooding (prolonged) (slightly limited)	0.20	Slightly limited: flooding (prolonged) (slightly limited)	0.20
66028: Leta-----	Moderately limited: flooding (moderately limited) wetness (moderately limited) percs slowly (moderately limited)	0.60 0.44 0.39	Moderately limited: flooding (moderately limited) wetness (moderately limited) percs slowly (moderately limited)	0.60 0.44 0.39	Moderately limited: wetness (moderately limited) too clayey (slightly limited) flooding (prolonged) (slightly limited)	0.44 0.21 0.20	Moderately limited: wetness (moderately limited) too clayey (slightly limited) flooding (prolonged) (slightly limited)	0.44 0.21 0.20	Moderately limited: wetness (moderately limited) flooding (prolonged) (slightly limited)	0.59 0.20

Table 12a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70023: Eldon-----	Limited: droughty (limited) moderate erodibility (moderately limited) percs slowly (slightly limited)	0.80 0.50 0.13	Moderately limited: moderate erodibility (moderately limited) percs slowly (slightly limited)	0.50 0.13	Not limited		Not limited		Not limited	
70029: Moko-----	Very limited: droughty (very limited) shallow to bedrock (very limited) slope (limited)	1.00 1.00 0.87	Very limited: droughty (very limited) shallow to bedrock (very limited) slope (limited)	1.00 1.00 0.87	Very limited: droughty (very limited) small stones (slightly limited) too clayey (slightly limited)	1.00 0.08 0.05	Very limited: droughty (very limited) shallow to bedrock (very limited) too clayey (slightly limited)	1.00 1.00 0.05	Very limited: shallow to bedrock (very limited) droughty (very limited)	1.00 1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
70046: Sacville-----	Very limited: wetness (very limited) moderate erodibility (moderately limited) percs slowly (moderately limited)	1.00 0.50 0.39	Very limited: wetness (very limited) moderate erodibility (moderately limited) percs slowly (moderately limited)	1.00 0.50 0.39	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00
73012: Gravois-----	Limited: droughty (limited) wetness (moderately limited) moderate erodibility (moderately limited)	0.83 0.55 0.50	Moderately limited: wetness (moderately limited) moderate erodibility (moderately limited) percs slowly (moderately limited)	0.55 0.50 0.39	Moderately limited: wetness (moderately limited)	0.55	Moderately limited: wetness (moderately limited)	0.55	Limited: wetness (limited)	0.85

Table 12a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73035: Gravois-----	Limited: droughty (limited) high erodibility (limited) wetness (moderately limited)	0.83 0.80 0.55	Limited: high erodibility (limited) wetness (moderately limited) percs slowly (moderately limited)	0.80 0.55 0.39	Moderately limited: wetness (moderately limited)	0.55	Moderately limited: wetness (moderately limited)	0.55	Limited: wetness (limited)	0.85
73040: Maplewood-----	Very limited: droughty (very limited) wetness (very limited) moderate erodibility (moderately limited)	1.00 1.00 0.50	Very limited: wetness (very limited) moderate erodibility (moderately limited) droughty (slightly limited)	1.00 0.50 0.14	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.14	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.14	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.14
73041: Maplewood-----	Very limited: droughty (very limited) wetness (very limited) high erodibility (limited)	1.00 1.00 0.80	Very limited: wetness (very limited) high erodibility (limited) droughty (slightly limited)	1.00 0.80 0.20	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.20	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.20	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.20
73042: Niangua-----	Very limited: small stones (very limited) droughty (very limited) slope (limited)	1.00 1.00 0.91	Very limited: small stones (very limited) slope (limited) high erodibility (limited)	1.00 0.91 0.80	Moderately limited: small stones (moderately limited)	0.42	Slightly limited: small stones (slightly limited)	0.30	Not limited	
Bardley-----	Very limited: droughty (very limited) small stones (limited) slope (limited)	1.00 1.00 0.91	Limited: small stones (limited) slope (limited) high erodibility (limited)	1.00 0.91 0.80	Limited: droughty (limited) small stones (slightly limited)	0.66 0.24	Limited: droughty (limited) depth to bedrock (moderately limited) small stones (slightly limited)	0.66 0.46 0.01	Limited: droughty (limited) depth to bedrock (moderately limited)	0.66 0.46

Table 12a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73048: Rueter-----	Very limited: droughty (very limited) small stones (limited) moderate erodibility (moderately limited)	1.00 0.82 0.50	Limited: small stones (limited) moderate erodibility (moderately limited) droughty (moderately limited)	0.82 0.50 0.35	Moderately limited: droughty (moderately limited) small stones (slightly limited)	0.35 0.17	Moderately limited: droughty (moderately limited)	0.35	Moderately limited: droughty (moderately limited)	0.35
73050: Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited: droughty (very limited) slope (very limited) small stones (limited)	1.00 1.00 1.00	Very limited: slope (very limited) small stones (limited) high erodibility (limited)	1.00 1.00 0.80	Limited: droughty (limited) small stones (slightly limited)	0.66 0.24	Limited: droughty (limited) depth to bedrock (moderately limited) small stones (slightly limited)	0.66 0.46 0.01	Limited: droughty (limited) depth to bedrock (moderately limited)	0.66 0.46
73088: Rueter-----	Very limited: droughty (very limited) small stones (very limited) high erodibility (limited)	1.00 1.00 0.80	Very limited: small stones (very limited) high erodibility (limited) droughty (moderately limited)	1.00 0.80 0.43	Moderately limited: small stones (moderately limited) droughty (moderately limited)	0.53 0.43	Moderately limited: small stones (moderately limited) droughty (moderately limited)	0.49 0.43	Moderately limited: droughty (moderately limited)	0.43
73089: Rueter-----	Very limited: droughty (very limited) small stones (very limited) high erodibility (limited)	1.00 1.00 0.80	Very limited: small stones (very limited) high erodibility (limited) slope (moderately limited)	1.00 0.80 0.60	Moderately limited: small stones (moderately limited) droughty (moderately limited)	0.53 0.43	Moderately limited: small stones (moderately limited) droughty (moderately limited)	0.49 0.43	Moderately limited: droughty (moderately limited)	0.43
73095: Gravois-----	Limited: droughty (limited) high erodibility (limited) wetness (moderately limited)	0.83 0.80 0.55	Limited: high erodibility (limited) wetness (moderately limited) percs slowly (moderately limited)	0.80 0.55 0.39	Moderately limited: wetness (moderately limited)	0.55	Moderately limited: wetness (moderately limited)	0.55	Limited: wetness (limited)	0.85

Table 12a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73101: Wrengart-----	Limited: high erodibility (limited) wetness (slightly limited)	0.80 0.13	Limited: high erodibility (limited) wetness (slightly limited)	0.80 0.13	Slightly limited: wetness (slightly limited)	0.13	Slightly limited: wetness (slightly limited)	0.13	Moderately limited: wetness (moderately limited)	0.37
73112: Gunlock-----	Limited: droughty (limited) high erodibility (limited) wetness (moderately limited)	0.99 0.80 0.58	Limited: high erodibility (limited) wetness (moderately limited) percs slowly (slightly limited)	0.80 0.58 0.13	Moderately limited: wetness (moderately limited)	0.58	Moderately limited: wetness (moderately limited)	0.58	Limited: wetness (limited)	0.93
73250: Gateway-----	Very limited: droughty (very limited) high erodibility (limited) depth to bedrock (limited)	1.00 0.80 0.66	Limited: droughty (limited) high erodibility (limited) depth to bedrock (limited)	0.89 0.80 0.66	Limited: droughty (limited) wetness (moderately limited) small stones (slightly limited)	0.89 0.36 0.13	Limited: droughty (limited) depth to bedrock (limited) wetness (moderately limited)	0.89 0.66 0.36	Limited: droughty (limited) depth to bedrock (limited) wetness (moderately limited)	0.89 0.66 0.51
Moko-----	Very limited: droughty (very limited) shallow to bedrock (very limited) high erodibility (limited)	1.00 1.00 0.80	Very limited: droughty (very limited) shallow to bedrock (very limited) high erodibility (limited)	1.00 1.00 0.80	Very limited: droughty (very limited) small stones (slightly limited)	1.00 0.13	Very limited: droughty (very limited) shallow to bedrock (very limited)	1.00 1.00	Very limited: shallow to bedrock (very limited) droughty (very limited)	1.00 1.00
73251: Gateway-----	Very limited: droughty (very limited) high erodibility (limited) depth to bedrock (limited)	1.00 0.80 0.66	Limited: droughty (limited) high erodibility (limited) depth to bedrock (limited)	0.89 0.80 0.66	Limited: droughty (limited) wetness (moderately limited) small stones (slightly limited)	0.89 0.36 0.13	Limited: droughty (limited) depth to bedrock (limited) wetness (moderately limited)	0.89 0.66 0.36	Limited: droughty (limited) depth to bedrock (limited) wetness (moderately limited)	0.89 0.66 0.51

Table 12a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73251: Moko-----	Very limited: droughty (very limited) shallow to bedrock (very limited) high erodibility (limited)	1.00 1.00 0.80	Very limited: droughty (very limited) shallow to bedrock (very limited) high erodibility (limited)	1.00 1.00 0.80	Very limited: droughty (very limited) small stones (slightly limited)	1.00 0.13	Very limited: droughty (very limited) shallow to bedrock (very limited)	1.00 1.00	Very limited: shallow to bedrock (very limited) droughty (very limited)	1.00 1.00
73253: Ocie-----	Limited: droughty (limited) moderate erodibility (moderately limited) percs slowly (moderately limited)	0.97 0.50 0.39	Moderately limited: moderate erodibility (moderately limited) percs slowly (moderately limited) small stones (moderately limited)	0.50 0.39 0.33	Slightly limited: wetness (slightly limited) small stones (slightly limited)	0.28 0.04	Slightly limited: wetness (slightly limited)	0.28	Moderately limited: wetness (moderately limited)	0.45
73254: Ocie-----	Limited: droughty (limited) high erodibility (limited) percs slowly (moderately limited)	0.97 0.80 0.39	Limited: high erodibility (limited) percs slowly (moderately limited) small stones (moderately limited)	0.80 0.39 0.33	Slightly limited: wetness (slightly limited) small stones (slightly limited)	0.28 0.04	Slightly limited: wetness (slightly limited)	0.28	Moderately limited: wetness (moderately limited)	0.45
73255: Ocie-----	Limited: small stones (limited) droughty (limited) high erodibility (limited)	1.00 0.97 0.80	Limited: small stones (limited) high erodibility (limited) percs slowly (moderately limited)	1.00 0.80 0.39	Slightly limited: wetness (slightly limited) small stones (slightly limited)	0.28 0.24	Slightly limited: wetness (slightly limited) small stones (slightly limited)	0.28 0.01	Moderately limited: wetness (moderately limited)	0.45
73256: Arkana-----	Very limited: droughty (very limited) high erodibility (limited) percs slowly (moderately limited)	1.00 0.80 0.39	Limited: high erodibility (limited) percs slowly (moderately limited) small stones (moderately limited)	0.80 0.39 0.33	Slightly limited: small stones (slightly limited) droughty (slightly limited)	0.04 0.03	Slightly limited: depth to bedrock (slightly limited) droughty (slightly limited)	0.21 0.03	Slightly limited: depth to bedrock (slightly limited) droughty (slightly limited)	0.21 0.03

Table 12a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73257: Caneyville----	Limited: high erodibility (limited) droughty (moderately limited) percs slowly (slightly limited)	0.80 0.43 0.13	Limited: high erodibility (limited) percs slowly (slightly limited) depth to bedrock (slightly limited)	0.80 0.13 0.13	Not limited		Slightly limited: depth to bedrock (slightly limited)	0.13	Slightly limited: depth to bedrock (slightly limited)	0.13
73258: Cotton-----	Very limited: wetness (very limited) droughty (limited) moderate erodibility (moderately limited)	1.00 0.79 0.50	Very limited: wetness (very limited) moderate erodibility (moderately limited) percs slowly (slightly limited)	1.00 0.50 0.13	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00
73259: Cotton-----	Very limited: wetness (very limited) high erodibility (limited) droughty (limited)	1.00 0.80 0.79	Very limited: wetness (very limited) high erodibility (limited) percs slowly (slightly limited)	1.00 0.80 0.13	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00
73260: Maplewood----	Very limited: droughty (very limited) wetness (very limited) moderate erodibility (moderately limited)	1.00 1.00 0.50	Very limited: wetness (very limited) moderate erodibility (moderately limited) droughty (slightly limited)	1.00 0.50 0.16	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.16	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.16	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.16
73261: Wrengart-----	Limited: high erodibility (limited) wetness (slightly limited)	0.80 0.13	Limited: high erodibility (limited) wetness (slightly limited)	0.80 0.13	Slightly limited: wetness (slightly limited)	0.13	Slightly limited: wetness (slightly limited)	0.13	Moderately limited: wetness (moderately limited)	0.37

Table 12a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73262: Wrengart-----	Limited: high erodibility (limited) wetness (slightly limited)	0.80 0.13	Limited: high erodibility (limited) wetness (slightly limited)	0.80 0.13	Slightly limited: wetness (slightly limited)	0.13	Slightly limited: wetness (slightly limited)	0.13	Moderately limited: wetness (moderately limited)	0.37
73263: Wrengart-----	Limited: high erodibility (limited) slope (slightly limited) wetness (slightly limited)	0.80 0.15 0.13	Limited: high erodibility (limited) slope (slightly limited) wetness (slightly limited)	0.80 0.15 0.13	Slightly limited: wetness (slightly limited)	0.13	Slightly limited: wetness (slightly limited)	0.13	Moderately limited: wetness (moderately limited)	0.37
74634: Hartville-----	Limited: high erodibility (limited) wetness (moderately limited) percs slowly (moderately limited)	0.80 0.60 0.39	Limited: high erodibility (limited) wetness (moderately limited) percs slowly (moderately limited)	0.80 0.60 0.39	Moderately limited: wetness (moderately limited)	0.60	Moderately limited: wetness (moderately limited)	0.60	Limited: wetness (limited)	0.99
74659: Deible-----	Very limited: wetness (very limited) droughty (very limited) flooding (moderately limited)	1.00 1.00 0.60	Very limited: wetness (very limited) flooding (moderately limited) droughty (moderately limited)	1.00 0.60 0.59	Very limited: wetness (very limited) droughty (moderately limited)	1.00 0.59	Very limited: wetness (very limited) droughty (moderately limited)	1.00 0.59	Very limited: wetness (very limited) droughty (moderately limited)	1.00 0.59
74678: Raccoon-----	Very limited: wetness (very limited) flooding (moderately limited) percs slowly (moderately limited)	1.00 0.60 0.39	Very limited: wetness (very limited) flooding (moderately limited) percs slowly (moderately limited)	1.00 0.60 0.39	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00

Table 12a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75376: Cedargap-----	Limited: droughty (limited) flooding (limited) small stones (slightly limited)	0.94 0.90 0.27	Limited: flooding (limited) small stones (slightly limited)	0.90 0.27	Slightly limited: small stones (slightly limited)	0.03	Not limited		Slightly limited: wetness (slightly limited)	0.01
75387: Hacreek-----	Very limited: wetness (very limited) flooding (moderately limited) percs slowly (slightly limited)	1.00 0.60 0.13	Very limited: wetness (very limited) flooding (moderately limited) percs slowly (slightly limited)	1.00 0.60 0.13	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00
75399: Jamesfin-----	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Not limited		Not limited		Not limited	
75415: Jemerson-----	Moderately limited: flooding (moderately limited)	0.60	Moderately limited: flooding (moderately limited)	0.60	Not limited		Not limited		Not limited	
75456: Racket-----	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Not limited		Not limited		Not limited	
75457: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Jamesfin-----	Moderately limited: flooding (moderately limited)	0.60	Moderately limited: flooding (moderately limited)	0.60	Not limited		Not limited		Not limited	

Table 12a.--Wildlife Habitat--Continued

Map symbol and soil name	Grain and seed crops (for use as food and cover)		Domestic grasses and legumes (for use as food and cover)		Upland wild herbaceous plants		Upland shrubs and vines		Upland deciduous trees	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75458: Tanglenook----	Very limited: wetness (very limited) flooding (moderately limited) droughty (moderately limited)	1.00 0.60 0.47	Very limited: wetness (very limited) flooding (moderately limited) percs slowly (moderately limited)	1.00 0.60 0.39	Very limited: wetness (very limited) too clayey (slightly limited)	1.00 0.26	Very limited: wetness (very limited) too clayey (slightly limited)	1.00 0.26	Very limited: wetness (very limited)	1.00
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99012: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 12b.--Wildlife Habitat

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15002: McGirk-----	Very limited: wetness (very limited)	1.00	Limited: infrequent flooding (limited)	0.80	Not limited		Not limited		Not limited	
60001: Menfro-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited) slope (very limited) seepage (moderately limited)	1.00 1.00 0.45
60003: Menfro-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited)	1.00	Very limited: slope (very limited) deep to water (very limited) seepage (moderately limited)	1.00 1.00 0.45
60004: Menfro-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited)	1.00	Very limited: slope (very limited) deep to water (very limited) seepage (moderately limited)	1.00 1.00 0.45
60005: Menfro-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited)	1.00	Very limited: slope (very limited) deep to water (very limited) seepage (moderately limited)	1.00 1.00 0.45

Table 12b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60051:										
Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Moderately limited: wetness (moderately limited)	0.35	Limited: deep to water (limited) infrequent flooding (limited)	0.88 0.80	Not limited		Limited: deep to water (limited)	0.88	Very limited: slope (very limited) seepage (slightly limited)	1.00 0.13
60052:										
Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Udorthents-----	Very limited: droughty (very limited) large stones (limited) wetness (moderately limited)	1.00 0.68 0.35	Limited: deep to water (limited) infrequent flooding (limited) large stones (limited)	0.88 0.80 0.68	Very limited: droughty (very limited) large stones (limited)	1.00 0.68	Limited: deep to water (limited)	0.88	Very limited: slope (very limited)	1.00
64002:										
Freeburg-----	Very limited: wetness (very limited)	1.00	Limited: infrequent flooding (limited) deep to water (slightly limited)	0.80 0.24	Not limited		Slightly limited: deep to water (slightly limited)	0.24	Slightly limited: seepage (slightly limited)	0.18
64007:										
Freeburg-----	Very limited: wetness (very limited)	1.00	Moderately limited: infrequent flooding (moderately limited) deep to water (slightly limited)	0.50 0.24	Not limited		Slightly limited: deep to water (slightly limited)	0.24	Slightly limited: seepage (slightly limited)	0.18
64010:										
Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Very limited: wetness (very limited)	1.00	Limited: infrequent flooding (limited) deep to water (slightly limited)	0.80 0.24	Not limited		Slightly limited: deep to water (slightly limited)	0.24	Slightly limited: seepage (slightly limited)	0.18

Table 12b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64011: Kliever-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Moderately limited: deep to water (moderately limited)	0.58	Very limited: deep to water (very limited)	1.00	Moderately limited: deep to water (moderately limited) seepage (moderately limited) slope (slightly limited)	0.58 0.45 0.08
64012: Kliever-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Moderately limited: deep to water (moderately limited)	0.58	Very limited: deep to water (very limited)	1.00	Very limited: slope (very limited) deep to water (moderately limited) seepage (moderately limited)	1.00 0.58 0.45
64013: Kliever-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Moderately limited: deep to water (moderately limited)	0.58	Very limited: deep to water (very limited)	1.00	Very limited: slope (very limited) deep to water (moderately limited) seepage (moderately limited)	1.00 0.58 0.45
64014: Kliever-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Moderately limited: deep to water (moderately limited)	0.58	Very limited: deep to water (very limited)	1.00	Very limited: slope (very limited) deep to water (moderately limited) seepage (moderately limited)	1.00 0.58 0.45
66000: Moniteau-----	Very limited: wetness (very limited)	1.00	Moderately limited: infrequent flooding (moderately limited)	0.50	Not limited		Not limited		Slightly limited: seepage (slightly limited)	0.18
66004: Dockery-----	Moderately limited: wetness (moderately limited)	0.59	Moderately limited: deep to water (moderately limited)	0.45	Not limited		Moderately limited: deep to water (moderately limited)	0.45	Moderately limited: seepage (moderately limited)	0.45

Table 12b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66006: Waldron-----	Moderately limited: wetness (moderately limited) flooding (prolonged) (slightly limited)	0.59 0.20	Moderately limited: infrequent flooding (moderately limited) deep to water (moderately limited) flooding (prolonged) (slightly limited)	0.50 0.45 0.20	Slightly limited: flooding (prolonged) (slightly limited)	0.20	Moderately limited: deep to water (moderately limited)	0.45	Not limited	
66009: Haynie-----	Slightly limited: flooding (prolonged) (slightly limited)	0.20	Very limited: deep to water (very limited) infrequent flooding (moderately limited) flooding (prolonged) (slightly limited)	1.00 0.50 0.20	Very limited: deep to water (very limited) flooding (prolonged) (slightly limited)	1.00 0.20	Very limited: deep to water (very limited) soil reaction (limited)	1.00 0.61	Very limited: deep to water (very limited) soil reaction (limited) seepage (moderately limited)	1.00 0.61 0.45
66010: Sarpy-----	Limited: droughty (limited) flooding (prolonged) (slightly limited)	0.69 0.20	Very limited: too sandy (very limited) deep to water (very limited) infrequent flooding (moderately limited)	1.00 1.00 0.50	Very limited: deep to water (very limited) droughty (limited) flooding (prolonged) (slightly limited)	1.00 0.69 0.20	Very limited: deep to water (very limited) too sandy (very limited)	1.00 1.00	Very limited: too sandy (very limited) deep to water (very limited) seepage (very limited)	1.00 1.00 1.00
66026: Blake-----	Slightly limited: wetness (slightly limited) flooding (prolonged) (slightly limited)	0.29 0.20	Very limited: deep to water (very limited) infrequent flooding (moderately limited) flooding (prolonged) (slightly limited)	1.00 0.50 0.20	Slightly limited: flooding (prolonged) (slightly limited) deep to water (slightly limited)	0.20 0.02	Very limited: deep to water (very limited)	1.00	Moderately limited: seepage (moderately limited) deep to water (slightly limited)	0.45 0.02
66027: Haynie-----	Slightly limited: flooding (prolonged) (slightly limited)	0.20	Very limited: deep to water (very limited) infrequent flooding (moderately limited) flooding (prolonged) (slightly limited)	1.00 0.50 0.20	Very limited: deep to water (very limited) flooding (prolonged) (slightly limited)	1.00 0.20	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited) seepage (moderately limited)	1.00 0.45

Table 12b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66028: Leta-----	Moderately limited: wetness (moderately limited) flooding (prolonged) (slightly limited)	0.59 0.20	Moderately limited: infrequent flooding (moderately limited) deep to water (moderately limited) flooding (prolonged) (slightly limited)	0.50 0.45 0.20	Slightly limited: flooding (prolonged) (slightly limited)	0.20	Moderately limited: deep to water (moderately limited)	0.45	Not limited	
70023: Eldon-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited) slope (limited) seepage (slightly limited)	1.00 0.91 0.18
70029: Moko-----	Very limited: shallow to bedrock (very limited) droughty (very limited)	1.00 1.00	Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Very limited: droughty (very limited) deep to water (very limited)	1.00 1.00	Very limited: deep to water (very limited)	1.00	Very limited: slope (very limited) deep to water (very limited)	1.00 1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
70046: Sacville-----	Very limited: wetness (very limited)	1.00	Limited: infrequent flooding (limited)	0.80	Not limited		Not limited		Moderately limited: slope (moderately limited)	0.31
73012: Gravois-----	Limited: wetness (limited)	0.85	Limited: infrequent flooding (limited) deep to water (moderately limited)	0.80 0.35	Not limited		Moderately limited: deep to water (moderately limited)	0.35	Limited: slope (limited)	0.91
73035: Gravois-----	Limited: wetness (limited)	0.85	Limited: infrequent flooding (limited) deep to water (moderately limited)	0.80 0.35	Not limited		Moderately limited: deep to water (moderately limited)	0.35	Very limited: slope (very limited)	1.00

Table 12b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73040: Maplewood-----	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.14	Limited: infrequent flooding (limited)	0.80	Slightly limited: droughty (slightly limited)	0.14	Not limited		Slightly limited: seepage (slightly limited) slope (slightly limited)	0.18 0.08
73041: Maplewood-----	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.20	Limited: infrequent flooding (limited)	0.80	Slightly limited: droughty (slightly limited)	0.20	Not limited		Very limited: slope (very limited) seepage (slightly limited)	1.00 0.18
73042: Niangua-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (limited) small stones (slightly limited)	1.00 0.80 0.30	Very limited: deep to water (very limited) small stones (slightly limited)	1.00 0.30	Very limited: deep to water (very limited)	1.00	Very limited: slope (very limited) deep to water (very limited) seepage (slightly limited)	1.00 1.00 0.18
Bardley-----	Limited: droughty (limited) depth to bedrock (moderately limited)	0.66 0.46	Very limited: deep to water (very limited) infrequent flooding (limited) small stones (slightly limited)	1.00 0.80 0.01	Very limited: deep to water (very limited) droughty (limited) small stones (slightly limited)	1.00 0.66 0.01	Very limited: deep to water (very limited)	1.00	Very limited: slope (very limited) deep to water (very limited) seepage (moderately limited)	1.00 1.00 0.45
73048: Rueter-----	Moderately limited: droughty (moderately limited)	0.35	Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Very limited: deep to water (very limited) droughty (moderately limited)	1.00 0.35	Very limited: deep to water (very limited) soil reaction (slightly limited)	1.00 0.18	Very limited: deep to water (very limited) slope (limited) seepage (limited)	1.00 0.91 0.79

Table 12b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73050: Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Limited: droughty (limited) depth to bedrock (moderately limited)	0.66 0.46	Very limited: deep to water (very limited) infrequent flooding (limited) small stones (slightly limited)	1.00 0.80 0.01	Very limited: deep to water (very limited) droughty (limited) small stones (slightly limited)	1.00 0.66 0.01	Very limited: deep to water (very limited)	1.00	Very limited: slope (very limited) deep to water (very limited) seepage (moderately limited)	1.00 1.00 0.45
73088: Rueter-----	Moderately limited: droughty (moderately limited)	0.43	Very limited: deep to water (very limited) infrequent flooding (limited) small stones (moderately limited)	1.00 0.80 0.49	Very limited: deep to water (very limited) small stones (moderately limited) droughty (moderately limited)	1.00 0.49 0.43	Very limited: deep to water (very limited) soil reaction (slightly limited)	1.00 0.18	Very limited: slope (very limited) deep to water (very limited) seepage (limited)	1.00 1.00 0.79
73089: Rueter-----	Moderately limited: droughty (moderately limited)	0.43	Very limited: deep to water (very limited) infrequent flooding (limited) small stones (moderately limited)	1.00 0.80 0.49	Very limited: deep to water (very limited) small stones (moderately limited) droughty (moderately limited)	1.00 0.49 0.43	Very limited: deep to water (very limited) soil reaction (slightly limited)	1.00 0.18	Very limited: slope (very limited) deep to water (very limited) seepage (limited)	1.00 1.00 0.79
73095: Gravois-----	Limited: wetness (limited)	0.85	Limited: infrequent flooding (limited) deep to water (moderately limited)	0.80 0.35	Not limited		Moderately limited: deep to water (moderately limited)	0.35	Very limited: slope (very limited)	1.00
73101: Wrengart-----	Moderately limited: wetness (moderately limited)	0.37	Limited: deep to water (limited) infrequent flooding (limited)	0.82 0.80	Not limited		Limited: deep to water (limited)	0.82	Very limited: slope (very limited) seepage (moderately limited)	1.00 0.45

Table 12b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73112: Gunlock-----	Limited: wetness (limited)	0.93	Limited: infrequent flooding (limited) deep to water (moderately limited)	0.80 0.32	Not limited		Moderately limited: deep to water (moderately limited)	0.32	Limited: slope (limited) seepage (slightly limited)	0.91 0.18
73250: Gatewood-----	Limited: droughty (limited) depth to bedrock (limited) wetness (moderately limited)	0.89 0.66 0.51	Limited: infrequent flooding (limited) deep to water (moderately limited)	0.80 0.53	Limited: droughty (limited)	0.89	Moderately limited: deep to water (moderately limited)	0.53	Limited: slope (limited)	0.91
Moko-----	Very limited: shallow to bedrock (very limited) droughty (very limited)	1.00 1.00	Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Very limited: droughty (very limited) deep to water (very limited)	1.00 1.00	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited) slope (limited) seepage (moderately limited)	1.00 0.91 0.45
73251: Gatewood-----	Limited: droughty (limited) depth to bedrock (limited) wetness (moderately limited)	0.89 0.66 0.51	Limited: infrequent flooding (limited) deep to water (moderately limited)	0.80 0.53	Limited: droughty (limited)	0.89	Moderately limited: deep to water (moderately limited)	0.53	Very limited: slope (very limited)	1.00
Moko-----	Very limited: shallow to bedrock (very limited) droughty (very limited)	1.00 1.00	Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Very limited: droughty (very limited) deep to water (very limited)	1.00 1.00	Very limited: deep to water (very limited)	1.00	Very limited: slope (very limited) deep to water (very limited) seepage (moderately limited)	1.00 1.00 0.45

Table 12b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73253: Ocie-----	Moderately limited: wetness (moderately limited)	0.45	Limited: infrequent flooding (limited) deep to water (limited)	0.80 0.61	Not limited		Limited: deep to water (limited)	0.61	Moderately limited: slope (moderately limited)	0.31
73254: Ocie-----	Moderately limited: wetness (moderately limited)	0.45	Limited: infrequent flooding (limited) deep to water (limited)	0.80 0.61	Not limited		Limited: deep to water (limited)	0.61	Very limited: slope (very limited)	1.00
73255: Ocie-----	Moderately limited: wetness (moderately limited)	0.45	Limited: infrequent flooding (limited) deep to water (limited) small stones (slightly limited)	0.80 0.61 0.01	Slightly limited: small stones (slightly limited)	0.01	Limited: deep to water (limited)	0.61	Very limited: slope (very limited)	1.00
73256: Arkana-----	Slightly limited: depth to bedrock (slightly limited) droughty (slightly limited)	0.21 0.03	Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Very limited: deep to water (very limited) droughty (slightly limited)	1.00 0.03	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited) slope (limited)	1.00 0.91
73257: Caneyville----	Slightly limited: depth to bedrock (slightly limited)	0.13	Very limited: deep to water (very limited) infrequent flooding (limited)	1.00 0.80	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited) slope (limited) seepage (slightly limited)	1.00 0.91 0.18
73258: Cotton-----	Very limited: wetness (very limited)	1.00	Limited: infrequent flooding (limited)	0.80	Not limited		Not limited		Slightly limited: seepage (slightly limited)	0.18

Table 12b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous-conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73259: Cotton-----	Very limited: wetness (very limited)	1.00	Limited: infrequent flooding (limited)	0.80	Not limited		Not limited		Limited: slope (limited) seepage (slightly limited)	0.91 0.18
73260: Maplewood----	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.16	Limited: infrequent flooding (limited)	0.80	Slightly limited: droughty (slightly limited)	0.16	Not limited		Slightly limited: seepage (slightly limited) slope (slightly limited)	0.18 0.08
73261: Wrengart-----	Moderately limited: wetness (moderately limited)	0.37	Limited: deep to water (limited) infrequent flooding (limited)	0.82 0.80	Not limited		Limited: deep to water (limited)	0.82	Very limited: slope (very limited) seepage (moderately limited)	1.00 0.45
73262: Wrengart-----	Moderately limited: wetness (moderately limited)	0.37	Limited: deep to water (limited) infrequent flooding (limited)	0.82 0.80	Not limited		Limited: deep to water (limited)	0.82	Very limited: slope (very limited) seepage (moderately limited)	1.00 0.45
73263: Wrengart-----	Moderately limited: wetness (moderately limited)	0.37	Limited: deep to water (limited) infrequent flooding (limited)	0.82 0.80	Not limited		Limited: deep to water (limited)	0.82	Very limited: slope (very limited) seepage (moderately limited)	1.00 0.45
74634: Hartville-----	Limited: wetness (limited)	0.99	Limited: infrequent flooding (limited) deep to water (slightly limited)	0.80 0.30	Not limited		Slightly limited: deep to water (slightly limited)	0.30	Limited: slope (limited)	0.91

Table 12b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74659: Deible-----	Very limited: wetness (very limited) droughty (moderately limited)	1.00 0.59	Moderately limited: infrequent flooding (moderately limited)	0.50	Moderately limited: droughty (moderately limited)	0.59	Not limited		Moderately limited: seepage (moderately limited)	0.45
74678: Raccoon-----	Very limited: wetness (very limited)	1.00	Moderately limited: infrequent flooding (moderately limited)	0.50	Not limited		Not limited		Not limited	
75376: Cedargap-----	Slightly limited: wetness (slightly limited)	0.01	Very limited: deep to water (very limited) infrequent flooding (moderately limited)	1.00 0.50	Slightly limited: deep to water (slightly limited)	0.30	Very limited: deep to water (very limited)	1.00	Moderately limited: seepage (moderately limited) deep to water (slightly limited)	0.45 0.30
75387: Hacreek-----	Very limited: wetness (very limited)	1.00	Moderately limited: infrequent flooding (moderately limited)	0.50	Not limited		Not limited		Slightly limited: seepage (slightly limited)	0.18
75399: Jamesfin-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (moderately limited)	1.00 0.50	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited) seepage (moderately limited)	1.00 0.45
75415: Jemerson-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (moderately limited)	1.00 0.50	Moderately limited: deep to water (moderately limited)	0.47	Very limited: deep to water (very limited)	1.00	Moderately limited: deep to water (moderately limited) seepage (moderately limited)	0.47 0.45
75456: Racket-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (moderately limited)	1.00 0.50	Limited: deep to water (limited)	0.85	Very limited: deep to water (very limited)	1.00	Limited: deep to water (limited) seepage (moderately limited)	0.85 0.45

Table 12b.--Wildlife Habitat--Continued

Map symbol and soil name	Upland mixed deciduous- conifer trees		Riparian herbaceous plants		Riparian shrubs, vines, and trees		Freshwater wetland plants		Irrigated freshwater wetland plants	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75457: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Jamesfin-----	Not limited		Very limited: deep to water (very limited) infrequent flooding (moderately limited)	1.00 0.50	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited)	1.00	Very limited: deep to water (very limited) seepage (moderately limited)	1.00 0.45
75458: Tanglenook----	Very limited: wetness (very limited)	1.00	Moderately limited: infrequent flooding (moderately limited)	0.50	Not limited		Not limited		Not limited	
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99012: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 13.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15002: McGirk-----	Very limited: shrink-swell (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) shrink-swell (very limited)	1.00 1.00	Very limited: shrink-swell (very limited) wetness (very limited)	1.00 1.00	Very limited: low strength (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Very limited: wetness (very limited)	1.00
60001: Menfro-----	Moderately limited: shrink-swell (moderately limited) slope (slightly limited)	0.45 0.15	Moderately limited: shrink-swell (moderately limited) slope (slightly limited)	0.43 0.15	Limited: slope (limited) shrink-swell (moderately limited)	0.83 0.45	Very limited: low strength (very limited) shrink-swell (moderately limited)	1.00 0.45	Not limited	
60003: Menfro-----	Limited: slope (limited) shrink-swell (moderately limited)	0.76 0.45	Limited: slope (limited) shrink-swell (moderately limited)	0.76 0.45	Very limited: slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited: low strength (very limited) slope (limited) shrink-swell (moderately limited)	1.00 0.63 0.45	Limited: slope (limited)	0.63
60004: Menfro-----	Very limited: slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited: slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited: slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited: slope (very limited) low strength (very limited) shrink-swell (moderately limited)	1.00 1.00 0.45	Very limited: slope (very limited)	1.00

Table 13.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60005: Menfro-----	Very limited: slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited: slope (very limited) shrink-swell (moderately limited)	1.00 0.33	Very limited: slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited: slope (very limited) low strength (very limited) shrink-swell (moderately limited)	1.00 1.00 0.45	Very limited: slope (very limited) too acid (slightly limited)	1.00 0.24
60051: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Slightly limited: slope (slightly limited)	0.15	Limited: wetness (limited) slope (slightly limited)	0.98 0.15	Limited: slope (limited)	0.83	Very limited: low strength (very limited)	1.00	Not limited	
60052: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Udorthents----	Very limited: shrink-swell (very limited) large stones (very limited) slope (moderately limited)	1.00 1.00 0.45	Very limited: shrink-swell (very limited) large stones (very limited) wetness (limited)	1.00 1.00 0.98	Very limited: shrink-swell (very limited) large stones (very limited) slope (very limited)	1.00 1.00 1.00	Very limited: low strength (very limited) shrink-swell (very limited) large stones (very limited)	1.00 1.00 1.00	Very limited: large stones >30% (very limited) too clayey (very limited) droughty (very limited)	1.00 1.00 1.00
64002: Freeburg-----	Limited: wetness (limited) shrink-swell (moderately limited)	0.68 0.45	Very limited: wetness (very limited) shrink-swell (moderately limited)	1.00 0.45	Limited: wetness (limited) shrink-swell (moderately limited)	0.68 0.45	Very limited: low strength (very limited) wetness (limited) shrink-swell (moderately limited)	1.00 0.68 0.45	Limited: wetness (limited)	0.68
64007: Freeburg-----	Very limited: flooding (very limited) wetness (limited) shrink-swell (moderately limited)	1.00 0.68 0.45	Very limited: flooding (very limited) wetness (very limited) shrink-swell (slightly limited)	1.00 1.00 0.30	Very limited: flooding (very limited) wetness (limited) shrink-swell (moderately limited)	1.00 0.68 0.45	Very limited: flooding (very limited) low strength (very limited) wetness (limited)	1.00 1.00 0.68	Limited: wetness (limited) flooding (moderately limited)	0.68 0.60

Table 13.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64010: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Very limited: flooding (very limited) wetness (limited) shrink-swell (moderately limited)	1.00 0.68 0.45	Very limited: flooding (very limited) wetness (very limited) shrink-swell (slightly limited)	1.00 1.00 0.30	Very limited: flooding (very limited) wetness (limited) shrink-swell (moderately limited)	1.00 0.68 0.45	Very limited: low strength (very limited) flooding (rare) (limited) wetness (limited)	1.00 0.90 0.68	Limited: wetness (limited)	0.68
64011: Kliever-----	Not limited		Moderately limited: wetness (moderately limited)	0.38	Not limited		Limited: low strength (limited)	0.78	Not limited	
64012: Kliever-----	Slightly limited: slope (slightly limited)	0.15	Moderately limited: wetness (moderately limited) slope (slightly limited)	0.38 0.15	Limited: slope (limited)	0.83	Limited: low strength (limited)	0.78	Not limited	
64013: Kliever-----	Limited: slope (limited)	0.76	Limited: slope (limited) wetness (moderately limited)	0.76 0.38	Very limited: slope (very limited)	1.00	Limited: low strength (limited) slope (limited)	0.78 0.63	Limited: slope (limited)	0.63
64014: Kliever-----	Very limited: slope (very limited)	1.00	Very limited: slope (very limited) wetness (moderately limited)	1.00 0.38	Very limited: slope (very limited)	1.00	Very limited: slope (very limited) low strength (limited)	1.00 0.78	Very limited: slope (very limited)	1.00
66000: Moniteau-----	Very limited: wetness (very limited) flooding (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Very limited: flooding (very limited) wetness (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Very limited: flooding (very limited) wetness (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Very limited: wetness (very limited) flooding (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Very limited: wetness (very limited) flooding (moderately limited)	1.00 0.60

Table 13.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66004: Dockery-----	Very limited: flooding (very limited) wetness (slightly limited)	1.00 0.28	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: flooding (very limited) wetness (slightly limited)	1.00 0.28	Very limited: flooding (very limited) low strength (very limited) wetness (slightly limited)	1.00 1.00 0.28	Very limited: flooding (very limited) wetness (slightly limited)	1.00 0.28
66006: Waldron-----	Very limited: flooding (very limited) shrink-swell (very limited) wetness (slightly limited)	1.00 1.00 0.28	Very limited: flooding (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Very limited: flooding (very limited) shrink-swell (very limited) wetness (slightly limited)	1.00 1.00 0.28	Very limited: low strength (very limited) flooding (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Moderately limited: too clayey (moderately limited) flooding (moderately limited) wetness (slightly limited)	0.60 0.60 0.28
66009: Haynie-----	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Moderately limited: flooding (moderately limited)	0.60
66010: Sarpy-----	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited) droughty (limited)	1.00 0.69
66026: Blake-----	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited) wetness (limited)	1.00 0.95	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited) low strength (slightly limited)	1.00 0.22	Moderately limited: flooding (moderately limited)	0.60
66027: Haynie-----	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00

Table 13.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66028: Leta-----	Very limited: flooding (very limited) wetness (slightly limited)	1.00 0.28	Very limited: flooding (very limited) wetness (very limited) shrink-swell (slightly limited)	1.00 1.00 0.02	Very limited: flooding (very limited) wetness (slightly limited)	1.00 0.28	Very limited: flooding (very limited) low strength (very limited) wetness (slightly limited)	1.00 1.00 0.28	Moderately limited: too clayey (moderately limited) flooding (moderately limited) wetness (slightly limited)	0.60 0.60 0.28
70023: Eldon-----	Very limited: shrink-swell (very limited)	1.00	Very limited: shrink-swell (very limited)	1.00	Very limited: shrink-swell (very limited) slope (limited)	1.00 0.68	Very limited: shrink-swell (very limited)	1.00	Not limited	
70029: Moko-----	Very limited: hard bedrock <20" (very limited) slope (very limited)	1.00 1.00	Very limited: hard bedrock <40" (very limited) slope (very limited)	1.00 1.00	Very limited: hard bedrock <20" (very limited) slope (very limited)	1.00 1.00	Very limited: hard bedrock <20" (very limited) slope (very limited)	1.00 1.00	Very limited: shallow to bedrock (very limited) droughty (very limited) slope (very limited)	1.00 1.00 1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
70046: Sacville-----	Very limited: wetness (very limited) shrink-swell (very limited)	1.00 1.00	Very limited: wetness (very limited) shrink-swell (very limited)	1.00 1.00	Very limited: wetness (very limited) shrink-swell (very limited) slope (slightly limited)	1.00 1.00 0.15	Very limited: low strength (very limited) wetness (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Very limited: wetness (very limited)	1.00
73012: Gravois-----	Moderately limited: wetness (moderately limited) shrink-swell (moderately limited)	0.49 0.45	Very limited: wetness (very limited) shrink-swell (slightly limited)	1.00 0.27	Limited: slope (limited) wetness (moderately limited) shrink-swell (moderately limited)	0.68 0.49 0.45	Very limited: low strength (very limited) wetness (moderately limited) shrink-swell (moderately limited)	1.00 0.49 0.45	Moderately limited: wetness (moderately limited)	0.49

Table 13.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73035: Gravois-----	Limited: slope (limited) wetness (moderately limited) shrink-swell (moderately limited)	0.68 0.49 0.45	Very limited: wetness (very limited) slope (limited) shrink-swell (slightly limited)	1.00 0.68 0.27	Very limited: slope (very limited) wetness (moderately limited) shrink-swell (moderately limited)	1.00 0.49 0.45	Very limited: low strength (very limited) wetness (moderately limited) shrink-swell (moderately limited)	1.00 0.49 0.45	Moderately limited: wetness (moderately limited) slope (moderately limited)	0.49 0.37
73040: Maplewood-----	Very limited: shrink-swell (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) shrink-swell (very limited)	1.00 1.00	Very limited: shrink-swell (very limited) wetness (very limited)	1.00 1.00	Very limited: low strength (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.14
73041: Maplewood-----	Very limited: shrink-swell (very limited) wetness (very limited) slope (slightly limited)	1.00 1.00 0.15	Very limited: wetness (very limited) shrink-swell (very limited) slope (slightly limited)	1.00 1.00 0.15	Very limited: shrink-swell (very limited) wetness (very limited) slope (limited)	1.00 1.00 0.83	Very limited: low strength (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.20
73042: Niangua-----	Very limited: slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited: slope (very limited) depth to bedrock (moderately limited) shrink-swell (moderately limited)	1.00 0.54 0.36	Very limited: slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited: low strength (very limited) slope (very limited) shrink-swell (moderately limited)	1.00 1.00 0.45	Very limited: slope (very limited) small stones (very limited)	1.00 1.00
Bardley-----	Very limited: slope (very limited) depth to bedrock (moderately limited) shrink-swell (moderately limited)	1.00 0.53 0.45	Very limited: hard bedrock <40" (very limited) slope (very limited) shrink-swell (moderately limited)	1.00 1.00 0.45	Very limited: slope (very limited) depth to bedrock (moderately limited) shrink-swell (moderately limited)	1.00 0.53 0.45	Very limited: low strength (very limited) slope (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.53	Very limited: slope (very limited) small stones (limited) droughty (limited)	1.00 1.00 0.66

Table 13.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73048: Rueter-----	Not limited		Slightly limited: shrink-swell (slightly limited)	0.09	Limited: slope (limited)	0.68	Not limited		Limited: too acid (limited) small stones (limited) droughty (moderately limited)	0.84 0.82 0.35
73050: Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited: slope (very limited) depth to bedrock (moderately limited) shrink-swell (moderately limited)	1.00 0.53 0.45	Very limited: hard bedrock <40" (very limited) slope (very limited) shrink-swell (moderately limited)	1.00 1.00 0.45	Very limited: slope (very limited) depth to bedrock (moderately limited) shrink-swell (moderately limited)	1.00 0.53 0.45	Very limited: low strength (very limited) slope (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.53	Very limited: slope (very limited) small stones (limited) droughty (limited)	1.00 1.00 0.66
73088: Rueter-----	Limited: slope (limited) large stones (slightly limited)	0.76 0.29	Limited: slope (limited) large stones (slightly limited) shrink-swell (slightly limited)	0.76 0.29 0.09	Very limited: slope (very limited) large stones (slightly limited)	1.00 0.29	Limited: slope (limited) large stones (slightly limited)	0.63 0.29	Very limited: small stones (very limited) too acid (limited) slope (limited)	1.00 0.84 0.63
73089: Rueter-----	Very limited: slope (very limited) large stones (slightly limited)	1.00 0.29	Very limited: slope (very limited) large stones (slightly limited) shrink-swell (slightly limited)	1.00 0.29 0.09	Very limited: slope (very limited) large stones (slightly limited)	1.00 0.29	Very limited: slope (very limited) large stones (slightly limited)	1.00 0.29	Very limited: slope (very limited) small stones (very limited) too acid (limited)	1.00 1.00 0.84
73095: Gravois-----	Very limited: slope (very limited) wetness (moderately limited) shrink-swell (moderately limited)	1.00 0.49 0.45	Very limited: slope (very limited) wetness (very limited) shrink-swell (slightly limited)	1.00 1.00 0.27	Very limited: slope (very limited) wetness (moderately limited) shrink-swell (moderately limited)	1.00 0.49 0.45	Very limited: slope (very limited) low strength (very limited) wetness (moderately limited)	1.00 1.00 0.49	Very limited: slope (very limited) wetness (moderately limited)	1.00 0.49

Table 13.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73101: Wrengart-----	Moderately limited: shrink-swell (moderately limited) slope (slightly limited)	0.45 0.15	Limited: wetness (limited) shrink-swell (moderately limited) slope (slightly limited)	0.99 0.45 0.15	Limited: slope (limited) shrink-swell (moderately limited)	0.83 0.45	Very limited: low strength (very limited) shrink-swell (moderately limited)	1.00 0.45	Not limited	
73112: Gunlock-----	Moderately limited: wetness (moderately limited) shrink-swell (moderately limited)	0.56 0.45	Very limited: wetness (very limited) shrink-swell (moderately limited)	1.00 0.45	Limited: slope (limited) wetness (moderately limited) shrink-swell (moderately limited)	0.68 0.56 0.45	Very limited: low strength (very limited) wetness (moderately limited) shrink-swell (moderately limited)	1.00 0.56 0.45	Moderately limited: wetness (moderately limited)	0.56
73250: Gatewood-----	Very limited: shrink-swell (very limited) depth to bedrock (limited) wetness (slightly limited)	1.00 0.66 0.13	Very limited: hard bedrock <40" (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Very limited: shrink-swell (very limited) slope (limited) depth to bedrock (limited)	1.00 0.68 0.66	Very limited: low strength (very limited) shrink-swell (very limited) depth to bedrock (limited)	1.00 1.00 0.66	Limited: droughty (limited) depth to bedrock (limited) small stones (limited)	0.89 0.66 0.64
Moko-----	Very limited: hard bedrock <20" (very limited)	1.00	Very limited: hard bedrock <40" (very limited)	1.00	Very limited: hard bedrock <20" (very limited) slope (limited)	1.00 0.68	Very limited: hard bedrock <20" (very limited)	1.00	Very limited: shallow to bedrock (very limited) droughty (very limited) small stones (limited)	1.00 1.00 0.64
73251: Gatewood-----	Very limited: shrink-swell (very limited) slope (limited) depth to bedrock (limited)	1.00 0.68 0.66	Very limited: hard bedrock <40" (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Very limited: slope (very limited) shrink-swell (very limited) depth to bedrock (limited)	1.00 1.00 0.66	Very limited: low strength (very limited) shrink-swell (very limited) depth to bedrock (limited)	1.00 1.00 0.66	Limited: droughty (limited) depth to bedrock (limited) small stones (limited)	0.89 0.66 0.64

Table 13.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73251: Moko-----	Very limited: hard bedrock <20" (very limited) slope (limited)	1.00 0.68	Very limited: hard bedrock <40" (very limited) slope (limited)	1.00 0.68	Very limited: hard bedrock <20" (very limited) slope (very limited)	1.00 1.00	Very limited: hard bedrock <20" (very limited) slope (moderately limited)	1.00 0.37	Very limited: shallow to bedrock (very limited) droughty (very limited) small stones (limited)	1.00 1.00 0.64
73253: Ocie-----	Very limited: shrink-swell (very limited)	1.00	Very limited: wetness (very limited) shrink-swell (limited) depth to bedrock (limited)	1.00 0.95 0.67	Very limited: shrink-swell (very limited) slope (slightly limited)	1.00 0.15	Very limited: low strength (very limited) shrink-swell (very limited)	1.00 1.00	Moderately limited: small stones (moderately limited) too acid (slightly limited)	0.33 0.12
73254: Ocie-----	Very limited: shrink-swell (very limited) slope (limited)	1.00 0.76	Very limited: wetness (very limited) shrink-swell (limited) slope (limited)	1.00 0.95 0.76	Very limited: slope (very limited) shrink-swell (very limited)	1.00 1.00	Very limited: low strength (very limited) shrink-swell (very limited) slope (limited)	1.00 1.00 0.63	Limited: slope (limited) small stones (moderately limited) too acid (slightly limited)	0.63 0.33 0.12
73255: Ocie-----	Very limited: shrink-swell (very limited) slope (limited)	1.00 0.99	Very limited: wetness (very limited) slope (limited) shrink-swell (limited)	1.00 0.99 0.94	Very limited: slope (very limited) shrink-swell (very limited)	1.00 1.00	Very limited: low strength (very limited) slope (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Very limited: slope (very limited) small stones (limited)	1.00 1.00
73256: Arkana-----	Very limited: shrink-swell (very limited) depth to bedrock (moderately limited)	1.00 0.36	Very limited: hard bedrock <40" (very limited) shrink-swell (very limited)	1.00 1.00	Very limited: shrink-swell (very limited) slope (limited) depth to bedrock (moderately limited)	1.00 0.68 0.36	Very limited: low strength (very limited) shrink-swell (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.36	Moderately limited: small stones (moderately limited) depth to bedrock (slightly limited) too acid (slightly limited)	0.33 0.21 0.06

Table 13.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73257: Caneyville----	Very limited: shrink-swell (very limited) depth to bedrock (slightly limited)	1.00 0.25	Very limited: hard bedrock <40" (very limited) shrink-swell (very limited)	1.00 1.00	Very limited: shrink-swell (very limited) slope (limited) depth to bedrock (slightly limited)	1.00 0.68 0.25	Very limited: low strength (very limited) shrink-swell (very limited) depth to bedrock (slightly limited)	1.00 1.00 0.25	Slightly limited: depth to bedrock (slightly limited)	0.13
73258: Cotton-----	Very limited: shrink-swell (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) shrink-swell (limited)	1.00 0.99	Very limited: shrink-swell (very limited) wetness (very limited)	1.00 1.00	Very limited: low strength (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Very limited: wetness (very limited)	1.00
73259: Cotton-----	Very limited: shrink-swell (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) shrink-swell (limited)	1.00 0.99	Very limited: shrink-swell (very limited) wetness (very limited) slope (limited)	1.00 1.00 0.68	Very limited: low strength (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Very limited: wetness (very limited)	1.00
73260: Maplewood----	Very limited: shrink-swell (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) shrink-swell (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.54	Very limited: shrink-swell (very limited) wetness (very limited)	1.00 1.00	Very limited: low strength (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.16
73261: Wrengart-----	Moderately limited: shrink-swell (moderately limited) slope (slightly limited)	0.45 0.15	Limited: wetness (limited) shrink-swell (moderately limited) slope (slightly limited)	0.99 0.45 0.15	Limited: slope (limited) shrink-swell (moderately limited)	0.83 0.45	Very limited: low strength (very limited) shrink-swell (moderately limited)	1.00 0.45	Not limited	

Table 13.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73262: Wrengart-----	Limited: slope (limited) shrink-swell (moderately limited)	0.76 0.45	Limited: wetness (limited) slope (limited) shrink-swell (moderately limited)	0.99 0.76 0.45	Very limited: slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited: low strength (very limited) slope (limited) shrink-swell (moderately limited)	1.00 0.63 0.45	Limited: slope (limited)	0.63
73263: Wrengart-----	Very limited: slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited: slope (very limited) wetness (limited) shrink-swell (moderately limited)	1.00 0.99 0.45	Very limited: slope (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited: slope (very limited) low strength (very limited) shrink-swell (moderately limited)	1.00 1.00 0.45	Very limited: slope (very limited)	1.00
74634: Hartville-----	Very limited: shrink-swell (very limited) wetness (limited)	1.00 0.61	Very limited: wetness (very limited) shrink-swell (very limited)	1.00 1.00	Very limited: shrink-swell (very limited) slope (limited) wetness (limited)	1.00 0.68 0.61	Very limited: low strength (very limited) shrink-swell (very limited) wetness (limited)	1.00 1.00 0.61	Limited: wetness (limited)	0.61
74659: Deible-----	Very limited: wetness (very limited) flooding (very limited)	1.00 1.00	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) flooding (very limited) low strength (very limited)	1.00 1.00 1.00	Very limited: wetness (very limited) flooding (moderately limited) droughty (moderately limited)	1.00 0.60 0.59
74678: Racoon-----	Very limited: wetness (very limited) flooding (very limited)	1.00 1.00	Very limited: flooding (very limited) wetness (very limited) shrink-swell (slightly limited)	1.00 1.00 0.15	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) flooding (very limited) low strength (slightly limited)	1.00 1.00 0.22	Very limited: wetness (very limited) flooding (moderately limited)	1.00 0.60

Table 13.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75376: Cedargap-----	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited) wetness (limited)	1.00 0.61	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited) small stones (slightly limited) large stones (slightly limited)	1.00 0.27 0.01
75387: Hacreek-----	Very limited: flooding (very limited) wetness (very limited) shrink-swell (moderately limited)	1.00 1.00 0.45	Very limited: flooding (very limited) wetness (very limited) shrink-swell (moderately limited)	1.00 1.00 0.45	Very limited: flooding (very limited) wetness (very limited) shrink-swell (moderately limited)	1.00 1.00 0.45	Very limited: low strength (very limited) flooding (very limited) wetness (very limited)	1.00 1.00 1.00	Very limited: wetness (very limited) flooding (moderately limited)	1.00 0.60
75399: Jamesfin-----	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited) wetness (slightly limited)	1.00 0.16	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited) low strength (very limited)	1.00 1.00	Very limited: flooding (very limited)	1.00
75415: Jemerson-----	Very limited: flooding (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited: flooding (very limited) wetness (moderately limited) shrink-swell (slightly limited)	1.00 0.47 0.29	Very limited: flooding (very limited) shrink-swell (moderately limited)	1.00 0.45	Very limited: flooding (very limited) low strength (very limited) shrink-swell (moderately limited)	1.00 1.00 0.45	Moderately limited: flooding (moderately limited)	0.60
75456: Racket-----	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited) wetness (slightly limited) shrink-swell (slightly limited)	1.00 0.24 0.10	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00

Table 13.--Building Site Development--Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements		Small commercial buildings		Local roads and streets		Lawns and landscaping	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75457: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Jamesfin-----	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited) wetness (slightly limited)	1.00 0.16	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited) low strength (very limited)	1.00 1.00	Moderately limited: flooding (moderately limited)	0.60
75458: Tanglenook----	Very limited: flooding (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Very limited: flooding (very limited) wetness (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Very limited: flooding (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Very limited: low strength (very limited) flooding (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Very limited: wetness (very limited) too clayey (moderately limited) flooding (moderately limited)	1.00 0.60 0.60
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99012: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 14.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15002: McGirk-----	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.93	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) too clayey (limited)	1.00 0.80	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) hard to pack (limited) too clayey (moderately limited)	1.00 0.70 0.60
60001: Menfro-----	Slightly limited: percs slowly (slightly limited)	0.25	Very limited: slope (very limited) seepage (moderately limited)	1.00 0.50	Slightly limited: too clayey (slightly limited)	0.07	Not limited		Not limited	
60003: Menfro-----	Limited: slope (limited) percs slowly (slightly limited)	0.63 0.25	Very limited: slope (very limited) seepage (moderately limited)	1.00 0.50	Limited: slope (limited) too clayey (slightly limited)	0.63 0.11	Limited: slope (limited)	0.63	Limited: slope (limited)	0.63
60004: Menfro-----	Very limited: slope (very limited) percs slowly (slightly limited)	1.00 0.25	Very limited: slope (very limited) seepage (moderately limited)	1.00 0.50	Very limited: slope (very limited) too clayey (slightly limited)	1.00 0.11	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00
60005: Menfro-----	Very limited: slope (very limited) percs slowly (slightly limited)	1.00 0.25	Very limited: slope (very limited) seepage (moderately limited)	1.00 0.50	Very limited: slope (very limited) too clayey (slightly limited) too acid (slightly limited)	1.00 0.23 0.18	Very limited: slope (very limited)	1.00	Very limited: slope (very limited) too acid (slightly limited) too clayey (slightly limited)	1.00 0.18 0.09

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60051: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.76	Very limited: wetness (very limited) slope (very limited)	1.00 1.00	Limited: wetness (limited)	0.66	Moderately limited: wetness (moderately limited)	0.40	Moderately limited: wetness (moderately limited)	0.33
60052: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Udorthents-----	Very limited: wetness (very limited) large stones (very limited) percs slowly (limited)	1.00 1.00 0.93	Very limited: wetness (very limited) large stones (very limited) slope (very limited)	1.00 1.00 1.00	Very limited: depth to bedrock (very limited) too clayey (very limited) large stones (very limited)	1.00 1.00 1.00	Moderately limited: wetness (moderately limited) slope (slightly limited)	0.40 0.04	Very limited: too clayey (very limited) large stones >35% (very limited) hard to pack (limited)	1.00 1.00 0.70
64002: Freeburg-----	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.71	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) too clayey (slightly limited)	1.00 0.07	Very limited: wetness (very limited)	1.00	Limited: wetness (limited)	0.68
64007: Freeburg-----	Very limited: wetness (very limited) flooding (very limited) percs slowly (limited)	1.00 1.00 0.71	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: flooding (very limited) wetness (very limited) too clayey (slightly limited)	1.00 1.00 0.11	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Limited: wetness (limited)	0.68
64010: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Very limited: wetness (very limited) percs slowly (limited) flooding (rare) (moderately limited)	1.00 0.71 0.60	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) flooding (rare) (moderately limited) too clayey (slightly limited)	1.00 0.60 0.11	Very limited: wetness (very limited) flooding (rare) (moderately limited)	1.00 0.60	Limited: wetness (limited)	0.68

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64011: Kliever-----	Moderately limited: wetness (moderately limited) percs slowly (slightly limited)	0.47 0.25	Moderately limited: seepage (moderately limited) wetness (slightly limited) slope (slightly limited)	0.50 0.22 0.08	Slightly limited: wetness (slightly limited) too clayey (slightly limited)	0.24 0.03	Not limited		Not limited	
64012: Kliever-----	Moderately limited: wetness (moderately limited) percs slowly (slightly limited)	0.47 0.25	Very limited: slope (very limited) seepage (moderately limited) wetness (slightly limited)	1.00 0.50 0.22	Slightly limited: wetness (slightly limited) too clayey (slightly limited)	0.24 0.03	Not limited		Not limited	
64013: Kliever-----	Limited: slope (limited) wetness (moderately limited) percs slowly (slightly limited)	0.63 0.47 0.25	Very limited: slope (very limited) seepage (moderately limited) wetness (slightly limited)	1.00 0.50 0.22	Limited: slope (limited) wetness (slightly limited) too clayey (slightly limited)	0.63 0.24 0.03	Limited: slope (limited)	0.63	Limited: slope (limited)	0.63
64014: Kliever-----	Very limited: slope (very limited) wetness (moderately limited) percs slowly (slightly limited)	1.00 0.47 0.25	Very limited: slope (very limited) seepage (moderately limited) wetness (slightly limited)	1.00 0.50 0.22	Very limited: slope (very limited) wetness (slightly limited) too clayey (slightly limited)	1.00 0.24 0.03	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00
66000: Moniteau-----	Very limited: wetness (very limited) flooding (very limited) percs slowly (limited)	1.00 1.00 0.71	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) flooding (very limited) too acid (slightly limited)	1.00 1.00 0.24	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) too acid (slightly limited)	1.00 0.24

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66004: Dockery-----	Very limited: wetness (very limited) flooding (very limited) percs slowly (slightly limited)	1.00 1.00 0.25	Very limited: flooding (very limited) wetness (very limited) seepage (moderately limited)	1.00 1.00 0.50	Very limited: flooding (very limited) wetness (limited)	1.00 0.99	Very limited: flooding (very limited) wetness (limited)	1.00 0.80	Moderately limited: wetness (moderately limited)	0.50
66006: Waldron-----	Very limited: flooding (very limited) wetness (very limited) percs slowly (limited)	1.00 1.00 0.93	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: flooding (very limited) wetness (limited) too clayey (limited)	1.00 0.99 0.70	Very limited: flooding (very limited) wetness (limited)	1.00 0.80	Limited: hard to pack (limited) wetness (moderately limited) too clayey (moderately limited)	0.70 0.50 0.45
66009: Haynie-----	Very limited: flooding (very limited) percs slowly (slightly limited)	1.00 0.25	Very limited: flooding (very limited) seepage (moderately limited)	1.00 0.50	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Not limited	
66010: Sarpy-----	Very limited: flooding (very limited) poor filter (very limited)	1.00 1.00	Very limited: flooding (very limited) seepage (very limited)	1.00 1.00	Very limited: flooding (very limited) too sandy (very limited) seepage (very limited)	1.00 1.00 1.00	Very limited: flooding (very limited) seepage (very limited)	1.00 1.00	Very limited: seepage (very limited) too sandy (very limited)	1.00 1.00
66026: Blake-----	Very limited: flooding (very limited) wetness (limited) percs slowly (slightly limited)	1.00 0.98 0.25	Very limited: flooding (very limited) wetness (very limited) seepage (moderately limited)	1.00 1.00 0.50	Very limited: flooding (very limited) wetness (moderately limited)	1.00 0.59	Very limited: flooding (very limited) wetness (slightly limited)	1.00 0.29	Slightly limited: wetness (slightly limited)	0.28

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66027: Haynie-----	Very limited: flooding (very limited) percs slowly (slightly limited)	1.00 0.25	Very limited: flooding (very limited) seepage (moderately limited)	1.00 0.50	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Not limited	
66028: Leta-----	Very limited: flooding (very limited) wetness (very limited) percs slowly (slightly limited)	1.00 1.00 0.25	Very limited: flooding (very limited) wetness (very limited) seepage (moderately limited)	1.00 1.00 0.50	Very limited: flooding (very limited) wetness (limited) too clayey (limited)	1.00 0.99 0.85	Very limited: flooding (very limited) wetness (limited)	1.00 0.80	Limited: too clayey (limited) wetness (moderately limited)	0.70 0.50
70023: Eldon-----	Limited: percs slowly (limited)	0.71	Limited: slope (limited)	0.91	Limited: too clayey (limited)	0.70	Not limited		Very limited: small stones >35% (very limited) too clayey (moderately limited)	1.00 0.45
70029: Moko-----	Very limited: depth to bedrock (very limited) slope (very limited)	1.00 1.00	Very limited: slope (very limited) depth to bedrock (very limited)	1.00 1.00	Very limited: depth to bedrock (very limited) slope (very limited)	1.00 1.00	Very limited: depth to bedrock (very limited) slope (very limited)	1.00 1.00	Very limited: depth to bedrock (very limited) slope (very limited)	1.00 1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
70046: Sacville-----	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.93	Very limited: wetness (very limited) slope (moderately limited)	1.00 0.31	Very limited: wetness (very limited) too clayey (limited)	1.00 0.68	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) hard to pack (limited) too clayey (moderately limited)	1.00 0.70 0.42

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73012: Gravois-----	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.73	Very limited: wetness (very limited) slope (limited)	1.00 0.91	Very limited: wetness (very limited) too clayey (very limited) too acid (slightly limited)	1.00 1.00 0.18	Limited: wetness (limited)	0.93	Very limited: too clayey (very limited) wetness (moderately limited) too acid (slightly limited)	1.00 0.57 0.18
73035: Gravois-----	Very limited: wetness (very limited) percs slowly (limited) slope (moderately limited)	1.00 0.73 0.37	Very limited: slope (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) too clayey (very limited) slope (moderately limited)	1.00 1.00 0.37	Limited: wetness (limited) slope (moderately limited)	0.93 0.37	Very limited: too clayey (very limited) wetness (moderately limited) slope (moderately limited)	1.00 0.57 0.37
73040: Maplewood-----	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) slope (slightly limited)	1.00 0.08	Very limited: wetness (very limited) too clayey (limited) large stones (slightly limited)	1.00 1.00 0.11	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) too clayey (limited) hard to pack (limited)	1.00 0.99 0.70
73041: Maplewood-----	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) slope (very limited)	1.00 1.00	Very limited: wetness (very limited) too clayey (limited) large stones (slightly limited)	1.00 1.00 0.11	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) too clayey (limited) hard to pack (limited)	1.00 0.99 0.70
73042: Niangua-----	Very limited: slope (very limited) percs slowly (limited) depth to bedrock (moderately limited)	1.00 0.71 0.54	Very limited: slope (very limited) depth to bedrock (moderately limited)	1.00 0.54	Very limited: slope (very limited) depth to bedrock (very limited) too clayey (very limited)	1.00 1.00 1.00	Very limited: slope (very limited) depth to bedrock (moderately limited)	1.00 0.39	Very limited: slope (very limited) too clayey (very limited) hard to pack (limited)	1.00 1.00 0.70

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73042: Bardley-----	Very limited: depth to bedrock (very limited) slope (very limited) percs slowly (slightly limited)	1.00 1.00 0.25	Very limited: slope (very limited) depth to bedrock (very limited) seepage (moderately limited)	1.00 1.00 0.50	Very limited: slope (very limited) depth to bedrock (very limited) too clayey (very limited)	1.00 1.00 1.00	Very limited: depth to bedrock (very limited) slope (very limited)	1.00 1.00	Very limited: depth to bedrock (very limited) slope (very limited) too clayey (very limited)	1.00 1.00 1.00
73048: Rueter-----	Slightly limited: percs slowly (slightly limited)	0.25	Very limited: seepage (very limited) slope (limited)	1.00 0.91	Limited: too clayey (limited) large stones (slightly limited)	0.92 0.04	Limited: seepage (limited)	0.75	Very limited: small stones >35% (very limited) too clayey (limited)	1.00 0.83
73050: Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited: depth to bedrock (very limited) slope (very limited) percs slowly (slightly limited)	1.00 1.00 0.25	Very limited: slope (very limited) depth to bedrock (very limited) seepage (moderately limited)	1.00 1.00 0.50	Very limited: slope (very limited) depth to bedrock (very limited) too clayey (very limited)	1.00 1.00 1.00	Very limited: depth to bedrock (very limited) slope (very limited)	1.00 1.00	Very limited: depth to bedrock (very limited) slope (very limited) too clayey (very limited)	1.00 1.00 1.00
73088: Rueter-----	Limited: slope (limited) large stones (slightly limited) percs slowly (slightly limited)	0.63 0.29 0.25	Very limited: slope (very limited) seepage (very limited)	1.00 1.00	Limited: too clayey (limited) slope (limited) large stones (limited)	0.92 0.63 0.63	Limited: seepage (limited) slope (limited)	0.75 0.63	Limited: too clayey (limited) slope (limited) small stones (moderately limited)	0.83 0.63 0.59
73089: Rueter-----	Very limited: slope (very limited) large stones (slightly limited) percs slowly (slightly limited)	1.00 0.29 0.25	Very limited: slope (very limited) seepage (very limited)	1.00 1.00	Very limited: slope (very limited) too clayey (limited) large stones (limited)	1.00 0.92 0.63	Very limited: slope (very limited) seepage (limited)	1.00 0.75	Very limited: slope (very limited) too clayey (limited) small stones (moderately limited)	1.00 0.83 0.59

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73095: Gravois-----	Very limited: slope (very limited) wetness (very limited) percs slowly (limited)	1.00 1.00 0.73	Very limited: slope (very limited) wetness (very limited)	1.00 1.00	Very limited: slope (very limited) wetness (very limited) too clayey (very limited)	1.00 1.00 1.00	Very limited: slope (very limited) wetness (limited)	1.00 0.93	Very limited: slope (very limited) too clayey (very limited) wetness (moderately limited)	1.00 1.00 0.57
73101: Wrengart-----	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.25	Very limited: wetness (very limited) slope (very limited) seepage (moderately limited)	1.00 1.00 0.50	Limited: too clayey (limited) wetness (limited) too acid (moderately limited)	0.80 0.69 0.42	Moderately limited: wetness (moderately limited)	0.44	Moderately limited: too acid (moderately limited) wetness (moderately limited) too clayey (slightly limited)	0.42 0.35 0.12
73112: Gunlock-----	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.71	Very limited: wetness (very limited) slope (limited)	1.00 0.91	Very limited: wetness (very limited) too clayey (very limited)	1.00 1.00	Limited: wetness (limited)	0.96	Very limited: too clayey (very limited) wetness (moderately limited)	1.00 0.59
73250: Gatewood-----	Very limited: depth to bedrock (very limited) wetness (very limited) percs slowly (limited)	1.00 1.00 0.94	Very limited: wetness (very limited) depth to bedrock (very limited) slope (limited)	1.00 1.00 0.91	Very limited: depth to bedrock (very limited) too clayey (very limited) wetness (limited)	1.00 1.00 0.89	Very limited: depth to bedrock (very limited) wetness (limited)	1.00 0.69	Very limited: depth to bedrock (very limited) too clayey (very limited) hard to pack (limited)	1.00 1.00 0.70
Moko-----	Very limited: depth to bedrock (very limited)	1.00	Very limited: depth to bedrock (very limited) slope (limited)	1.00 0.91	Very limited: depth to bedrock (very limited)	1.00	Very limited: depth to bedrock (very limited)	1.00	Very limited: depth to bedrock (very limited) small stones (limited)	1.00 0.99

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73251: Gatewood-----	Very limited: depth to bedrock (very limited) wetness (very limited) percs slowly (limited)	1.00 1.00 0.94	Very limited: slope (very limited) wetness (very limited) depth to bedrock (very limited)	1.00 1.00 1.00	Very limited: depth to bedrock (very limited) too clayey (very limited) wetness (limited)	1.00 1.00 1.00 0.89	Very limited: depth to bedrock (very limited) wetness (limited) slope (moderately limited)	1.00 0.69 0.37	Very limited: depth to bedrock (very limited) too clayey (very limited) hard to pack (limited)	1.00 1.00 0.70
Moko-----	Very limited: depth to bedrock (very limited) slope (moderately limited)	1.00 0.37	Very limited: slope (very limited) depth to bedrock (very limited)	1.00 1.00	Very limited: depth to bedrock (very limited) slope (moderately limited)	1.00 0.37	Very limited: depth to bedrock (very limited) slope (moderately limited)	1.00 0.37	Very limited: depth to bedrock (very limited) small stones (limited) slope (moderately limited)	1.00 0.99 0.37
73253: Ocie-----	Very limited: wetness (very limited) percs slowly (limited) depth to bedrock (limited)	1.00 0.93 0.67	Very limited: wetness (very limited) depth to bedrock (limited) seepage (moderately limited)	1.00 0.67 0.50	Very limited: depth to bedrock (very limited) too clayey (very limited) wetness (limited)	1.00 1.00 0.79	Limited: wetness (limited) depth to bedrock (moderately limited)	0.61 0.51	Very limited: too clayey (very limited) small stones (limited) hard to pack (limited)	1.00 0.80 0.70
73254: Ocie-----	Very limited: wetness (very limited) percs slowly (limited) depth to bedrock (limited)	1.00 0.93 0.67	Very limited: slope (very limited) wetness (very limited) depth to bedrock (limited)	1.00 1.00 0.67	Very limited: depth to bedrock (very limited) too clayey (very limited) wetness (limited)	1.00 1.00 0.79	Limited: slope (limited) wetness (limited) depth to bedrock (moderately limited)	0.63 0.61 0.51	Very limited: too clayey (very limited) small stones (limited) hard to pack (limited)	1.00 0.80 0.70
73255: Ocie-----	Very limited: slope (very limited) wetness (very limited) percs slowly (limited)	1.00 1.00 0.93	Very limited: slope (very limited) wetness (very limited) seepage (moderately limited)	1.00 1.00 0.50	Very limited: slope (very limited) depth to bedrock (very limited) too clayey (very limited)	1.00 1.00 1.00	Very limited: slope (very limited) wetness (limited) depth to bedrock (slightly limited)	1.00 0.61 0.12	Very limited: slope (very limited) too clayey (very limited) hard to pack (limited)	1.00 1.00 0.70

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73256: Arkana-----	Very limited: depth to bedrock (very limited) percs slowly (limited)	1.00 0.93	Very limited: depth to bedrock (very limited) slope (limited)	1.00 0.91	Very limited: depth to bedrock (very limited) too clayey (very limited)	1.00 1.00	Very limited: depth to bedrock (very limited)	1.00	Very limited: depth to bedrock (very limited) too clayey (very limited) hard to pack (limited)	1.00 1.00 0.70
73257: Caneyville----	Very limited: depth to bedrock (very limited) percs slowly (limited)	1.00 0.71	Very limited: depth to bedrock (very limited) slope (limited)	1.00 0.91	Very limited: depth to bedrock (very limited) too clayey (limited)	1.00 0.84	Very limited: depth to bedrock (very limited)	1.00	Very limited: depth to bedrock (very limited) hard to pack (limited) too clayey (limited)	1.00 0.70 0.67
73258: Cotton-----	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.71	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) too clayey (very limited) too acid (moderately limited)	1.00 1.00 0.42	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) too acid (moderately limited) too clayey (moderately limited)	1.00 0.42 0.31
73259: Cotton-----	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.71	Very limited: wetness (very limited) slope (limited)	1.00 0.91	Very limited: wetness (very limited) too clayey (very limited) too acid (moderately limited)	1.00 1.00 0.42	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) too acid (moderately limited) too clayey (moderately limited)	1.00 0.42 0.31
73260: Maplewood-----	Very limited: wetness (very limited) depth to bedrock (moderately limited)	1.00 0.54	Very limited: wetness (very limited) depth to bedrock (moderately limited) slope (slightly limited)	1.00 0.54 0.08	Very limited: depth to bedrock (very limited) wetness (very limited) too clayey (very limited)	1.00 1.00 1.00	Very limited: wetness (very limited) depth to bedrock (moderately limited)	1.00 0.39	Very limited: too clayey (very limited) wetness (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.39

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73261: Wrengart-----	Very limited: wetness (very limited) percs slowly (slightly limited)	1.00 0.25 	Very limited: wetness (very limited) slope (very limited) seepage (moderately limited)	1.00 1.00 0.50 	Limited: too clayey (limited) wetness (limited) too acid (moderately limited)	0.80 0.69 0.42 	Moderately limited: wetness (moderately limited)	0.44 	Moderately limited: too acid (moderately limited) wetness (moderately limited) too clayey (slightly limited)	0.42 0.35 0.12
73262: Wrengart-----	Very limited: wetness (very limited) slope (limited) percs slowly (slightly limited)	1.00 0.63 0.25 	Very limited: slope (very limited) wetness (very limited) seepage (moderately limited)	1.00 1.00 0.50 	Limited: too clayey (limited) wetness (limited) slope (limited)	0.80 0.69 0.63 	Limited: slope (limited) wetness (moderately limited)	0.63 0.44 	Limited: slope (limited) too acid (moderately limited) wetness (moderately limited)	0.63 0.42 0.35
73263: Wrengart-----	Very limited: slope (very limited) wetness (very limited) percs slowly (slightly limited)	1.00 1.00 0.25 	Very limited: slope (very limited) wetness (very limited) seepage (moderately limited)	1.00 1.00 0.50 	Very limited: slope (very limited) too clayey (limited) wetness (limited)	1.00 0.80 0.69 	Very limited: slope (very limited) wetness (moderately limited)	1.00 0.44 	Very limited: slope (very limited) too acid (moderately limited) wetness (moderately limited)	1.00 0.42 0.35
74634: Hartville-----	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.93 	Very limited: wetness (very limited) slope (limited)	1.00 0.91 	Very limited: wetness (very limited) too clayey (moderately limited) too acid (slightly limited)	1.00 0.36 0.06 	Limited: wetness (limited)	0.99 	Limited: hard to pack (limited) wetness (moderately limited) too clayey (slightly limited)	0.70 0.61 0.18
74659: Deible-----	Very limited: wetness (very limited) flooding (very limited)	1.00 1.00 	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00 	Very limited: wetness (very limited) flooding (very limited) too clayey (limited)	1.00 1.00 0.63 	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00 	Very limited: wetness (very limited) hard to pack (limited) too clayey (moderately limited)	1.00 0.70 0.35

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74678: Racoon-----	Very limited: wetness (very limited) flooding (very limited) percs slowly (limited)	1.00 1.00 0.93	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) flooding (very limited) too clayey (limited)	1.00 1.00 0.69	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) too acid (moderately limited) too clayey (moderately limited)	1.00 0.48 0.44
75376: Cedargap-----	Very limited: flooding (very limited) percs slowly (limited) wetness (moderately limited)	1.00 0.71 0.61	Very limited: flooding (very limited) wetness (limited) seepage (moderately limited)	1.00 0.71 0.50	Very limited: flooding (very limited) too clayey (limited) wetness (slightly limited)	1.00 0.78 0.30	Very limited: flooding (very limited)	1.00	Limited: small stones (limited) too clayey (moderately limited)	0.99 0.57
75387: Hacreek-----	Very limited: wetness (very limited) flooding (very limited) percs slowly (limited)	1.00 1.00 0.71	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: flooding (very limited) wetness (very limited) too clayey (moderately limited)	1.00 1.00 0.31	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) too clayey (slightly limited)	1.00 0.15
75399: Jamesfin-----	Very limited: flooding (very limited) wetness (moderately limited) percs slowly (slightly limited)	1.00 0.30 0.25	Very limited: flooding (very limited) seepage (moderately limited)	1.00 0.50	Very limited: flooding (very limited) wetness (slightly limited)	1.00 0.15	Very limited: flooding (very limited)	1.00	Not limited	
75415: Jemerson-----	Very limited: flooding (very limited) wetness (moderately limited) percs slowly (slightly limited)	1.00 0.52 0.25	Very limited: flooding (very limited) seepage (moderately limited) wetness (moderately limited)	1.00 0.50 0.39	Very limited: flooding (very limited) wetness (slightly limited)	1.00 0.26	Very limited: flooding (very limited)	1.00	Not limited	

Table 14.--Sanitary Facilities--Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons		Sanitary landfill (trench)		Sanitary landfill (area)		Daily cover for landfill	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75456: Racket-----	Very limited: flooding (very limited) percs slowly (limited) wetness (moderately limited)	1.00 0.93 0.37	Very limited: flooding (very limited) seepage (moderately limited) wetness (slightly limited)	1.00 0.50 0.02	Very limited: flooding (very limited) too clayey (limited) wetness (slightly limited)	1.00 0.69 0.19	Very limited: flooding (very limited)	1.00	Not limited	
75457: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Jamesfin-----	Very limited: flooding (very limited) wetness (moderately limited) percs slowly (slightly limited)	1.00 0.30 0.25	Very limited: flooding (very limited) seepage (moderately limited)	1.00 0.50	Very limited: flooding (very limited) wetness (slightly limited)	1.00 0.15	Very limited: flooding (very limited)	1.00	Not limited	
75458: Tanglenook----	Very limited: wetness (very limited) flooding (very limited) percs slowly (limited)	1.00 1.00 0.93	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) flooding (very limited) too clayey (limited)	1.00 1.00 0.97	Very limited: flooding (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) too clayey (limited) hard to pack (limited)	1.00 0.93 0.70
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99012: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 15.--Construction Materials and Excavating

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15002: McGirk-----	Very limited: low strength (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: too clayey (very limited) wetness (very limited) too acid (moderately limited)	1.00 1.00 0.36	Very limited: wetness (very limited) too clayey (moderately limited) cutbanks cave (slightly limited)	1.00 0.60 0.29
60001: Menfro-----	Limited: low strength (limited) shrink-swell (moderately limited)	0.78 0.43	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Moderately limited: too clayey (moderately limited)	0.42	Slightly limited: cutbanks cave (slightly limited)	0.29
60003: Menfro-----	Limited: low strength (limited) shrink-swell (moderately limited)	0.78 0.45	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Limited: slope (limited) too clayey (moderately limited)	0.63 0.50	Limited: slope (limited) cutbanks cave (slightly limited)	0.63 0.29
60004: Menfro-----	Limited: low strength (limited) shrink-swell (moderately limited) slope (slightly limited)	0.78 0.45 0.25	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: slope (very limited) too clayey (moderately limited)	1.00 0.50	Very limited: slope (very limited) cutbanks cave (slightly limited)	1.00 0.29
60005: Menfro-----	Very limited: slope (very limited) low strength (very limited) shrink-swell (moderately limited)	1.00 1.00 0.33	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: slope (very limited) too clayey (limited) too acid (slightly limited)	1.00 0.66 0.24	Very limited: slope (very limited) cutbanks cave (slightly limited) too clayey (slightly limited)	1.00 0.29 0.09

Table 15.--Construction Materials and Excavating--Continued

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60051: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Very limited: low strength (very limited) wetness (slightly limited)	1.00 0.01	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Slightly limited: too clayey (slightly limited) wetness (slightly limited)	0.26 0.01	Limited: wetness (limited) cutbanks cave (slightly limited)	0.98 0.29
60052: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Udorthents----	Very limited: low strength (very limited) shrink-swell (very limited) large stones (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer) large stones (thickest layer)	1.00 1.00 0.66	Improbable: excess fines (bottom layer) excess fines (thickest layer) large stones (thickest layer)	1.00 1.00 0.66	Very limited: too clayey (very limited) large stones >25% (very limited) small stones (moderately limited)	1.00 1.00 0.50	Very limited: too clayey (very limited) large stones (very limited) wetness (limited)	1.00 1.00 0.98
64002: Freeburg-----	Very limited: low strength (very limited) wetness (limited) shrink-swell (moderately limited)	1.00 0.91 0.45	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Limited: wetness (limited) too clayey (moderately limited)	0.91 0.42	Very limited: wetness (very limited) cutbanks cave (slightly limited)	1.00 0.29
64007: Freeburg-----	Very limited: low strength (very limited) wetness (limited) shrink-swell (slightly limited)	1.00 0.91 0.30	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Limited: wetness (limited) too clayey (moderately limited) too acid (moderately limited)	0.91 0.50 0.36	Very limited: wetness (very limited) flooding (moderately limited) cutbanks cave (slightly limited)	1.00 0.60 0.29

Table 15.--Construction Materials and Excavating--Continued

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64010: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Very limited: low strength (very limited) wetness (limited) shrink-swell (slightly limited)	1.00 0.91 0.30	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Limited: wetness (limited) too clayey (moderately limited) too acid (moderately limited)	0.91 0.50 0.36	Very limited: wetness (very limited) cutbanks cave (slightly limited)	1.00 0.29
64011: Kliever-----	Limited: low strength (limited)	0.78	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Slightly limited: too sandy (slightly limited) too clayey (slightly limited)	0.10 0.04	Moderately limited: wetness (moderately limited) cutbanks cave (slightly limited)	0.38 0.29
64012: Kliever-----	Limited: low strength (limited)	0.78	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Slightly limited: too sandy (slightly limited) too clayey (slightly limited)	0.10 0.04	Moderately limited: wetness (moderately limited) cutbanks cave (slightly limited)	0.38 0.29
64013: Kliever-----	Limited: low strength (limited)	0.78	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Limited: slope (limited) too sandy (slightly limited) too clayey (slightly limited)	0.63 0.10 0.04	Limited: slope (limited) wetness (moderately limited) cutbanks cave (slightly limited)	0.63 0.38 0.29
64014: Kliever-----	Limited: low strength (limited) slope (slightly limited)	0.78 0.25	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: slope (very limited) too sandy (slightly limited) too clayey (slightly limited)	1.00 0.10 0.04	Very limited: slope (very limited) wetness (moderately limited) cutbanks cave (slightly limited)	1.00 0.38 0.29

Table 15.--Construction Materials and Excavating--Continued

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66000: Moniteau-----	Very limited: wetness (very limited) shrink-swell (very limited) low strength (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: wetness (very limited) too clayey (slightly limited) too acid (slightly limited)	1.00 0.26 0.24	Very limited: wetness (very limited) flooding (moderately limited) cutbanks cave (slightly limited)	1.00 0.60 0.29
66004: Dockery-----	Very limited: low strength (very limited) wetness (moderately limited)	1.00 0.48	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Moderately limited: wetness (moderately limited) too clayey (slightly limited)	0.48 0.17	Very limited: wetness (very limited) flooding (moderately limited) cutbanks cave (slightly limited)	1.00 0.60 0.29
66006: Waldron-----	Very limited: low strength (very limited) shrink-swell (very limited) wetness (moderately limited)	1.00 1.00 0.48	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: too clayey (very limited) wetness (moderately limited)	1.00 0.48	Very limited: wetness (very limited) flooding (moderately limited) too clayey (moderately limited)	1.00 0.60 0.45
66009: Haynie-----	Not limited		Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Moderately limited: too sandy (moderately limited) excess lime (slightly limited)	0.46 0.03	Very limited: cutbanks cave (very limited) flooding (moderately limited)	1.00 0.60
66010: Sarpy-----	Not limited		Possible: possible source (thickest layer) possible source (bottom layer)	0.06 0.06	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: too sandy (very limited)	1.00	Very limited: cutbanks cave (very limited) flooding (moderately limited)	1.00 0.60

Table 15.--Construction Materials and Excavating--Continued

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66026: Blake-----	Slightly limited: low strength (slightly limited)	0.22	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Slightly limited: excess lime (slightly limited)	0.03	Limited: wetness (limited) flooding (moderately limited) cutbanks cave (slightly limited)	0.95 0.60 0.29
66027: Haynie-----	Not limited		Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Slightly limited: excess lime (slightly limited)	0.03	Moderately limited: flooding (moderately limited) cutbanks cave (slightly limited)	0.60 0.29
66028: Leta-----	Very limited: low strength (very limited) wetness (moderately limited) shrink-swell (slightly limited)	1.00 0.48 0.02	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Moderately limited: wetness (moderately limited)	0.48	Very limited: wetness (very limited) too clayey (limited) flooding (moderately limited)	1.00 0.70 0.60
70023: Eldon-----	Very limited: shrink-swell (very limited)	1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Possible: excess fines (thickest layer) possible source (bottom layer)	1.00 0.50	Very limited: small stones (very limited) too clayey (very limited) area reclaim (very limited)	1.00 1.00 1.00	Very limited: cutbanks cave (very limited) too clayey (moderately limited)	1.00 0.45
70029: Moko-----	Very limited: depth to bedrock (very limited) slope (very limited)	1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: depth to bedrock (very limited) slope (very limited) large surface stones (limited)	1.00 1.00 0.79	Very limited: hard bedrock <40" (very limited) slope (very limited) cutbanks cave (slightly limited)	1.00 1.00 0.29
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 15.--Construction Materials and Excavating--Continued

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70046: Sacville-----	Very limited: low strength (very limited) wetness (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: wetness (very limited) too clayey (limited)	1.00 0.66	Very limited: wetness (very limited) too clayey (moderately limited) cutbanks cave (slightly limited)	1.00 0.42 0.29
73012: Gravois-----	Very limited: low strength (very limited) wetness (limited) shrink-swell (slightly limited)	1.00 0.76 0.27	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (bottom layer)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (bottom layer)	1.00 1.00 1.00	Limited: wetness (limited) too clayey (moderately limited) too acid (slightly limited)	0.76 0.48 0.18	Very limited: cutbanks cave (very limited) wetness (very limited) too clayey (very limited)	1.00 1.00 1.00
73035: Gravois-----	Very limited: low strength (very limited) wetness (limited) shrink-swell (slightly limited)	1.00 0.76 0.27	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (bottom layer)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (bottom layer)	1.00 1.00 1.00	Limited: wetness (limited) too clayey (moderately limited) slope (moderately limited)	0.76 0.48 0.37	Very limited: cutbanks cave (very limited) wetness (very limited) too clayey (very limited)	1.00 1.00 1.00
73040: Maplewood-----	Very limited: low strength (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (bottom layer)	1.00 1.00 0.99	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (bottom layer)	1.00 1.00 0.99	Very limited: too clayey (very limited) wetness (very limited)	1.00 1.00	Very limited: wetness (very limited) cutbanks cave (very limited) too clayey (limited)	1.00 1.00 0.99
73041: Maplewood-----	Very limited: low strength (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (bottom layer)	1.00 1.00 0.99	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (bottom layer)	1.00 1.00 0.99	Very limited: wetness (very limited) too clayey (limited)	1.00 0.94	Very limited: wetness (very limited) cutbanks cave (very limited) too clayey (limited)	1.00 1.00 0.99

Table 15.--Construction Materials and Excavating--Continued

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73042: Niangua-----	Very limited: low strength (very limited) slope (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.39	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: slope (very limited) too clayey (very limited) large surface stones (very limited)	1.00 1.00 1.00	Very limited: slope (very limited) cutbanks cave (very limited) too clayey (very limited)	1.00 1.00 1.00
Bardley-----	Very limited: low strength (very limited) depth to bedrock (very limited) slope (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: depth to bedrock (very limited) slope (very limited) too clayey (very limited)	1.00 1.00 1.00	Very limited: hard bedrock <40" (very limited) slope (very limited) too clayey (very limited)	1.00 1.00 1.00
73048: Rueter-----	Slightly limited: shrink-swell (slightly limited)	0.09	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (thickest layer)	1.00 1.00 0.30	Possible: possible source (thickest layer) possible source (bottom layer) small stones (thickest layer)	0.50 0.50 0.30	Very limited: small stones (very limited) area reclaim (very limited) too acid (moderately limited)	1.00 1.00 0.36	Very limited: cutbanks cave (very limited) too clayey (limited)	1.00 0.83
73050: Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited: slope (very limited) low strength (very limited) depth to bedrock (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: depth to bedrock (very limited) slope (very limited) too clayey (very limited)	1.00 1.00 1.00	Very limited: hard bedrock <40" (very limited) slope (very limited) too clayey (very limited)	1.00 1.00 1.00
73088: Rueter-----	Slightly limited: large stones (slightly limited) shrink-swell (slightly limited)	0.29 0.09	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (thickest layer)	1.00 1.00 0.66	Possible: excess fines (bottom layer) excess fines (thickest layer) small stones (thickest layer)	0.99 0.99 0.66	Very limited: small stones (very limited) area reclaim (very limited) large surface stones (limited)	1.00 1.00 0.79	Limited: too clayey (limited) slope (limited) cutbanks cave (slightly limited)	0.83 0.63 0.29

Table 15.--Construction Materials and Excavating--Continued

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73089: Rueter-----	Limited: slope (limited) large stones (slightly limited) shrink-swell (slightly limited)	0.92 0.29 0.09	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (thickest layer)	1.00 1.00 0.66	Possible: excess fines (bottom layer) excess fines (thickest layer) small stones (thickest layer)	0.99 0.99 0.66	Very limited: slope (very limited) small stones (very limited) area reclaim (very limited)	1.00 1.00 1.00	Very limited: slope (very limited) too clayey (limited) cutbanks cave (slightly limited)	1.00 0.83 0.29
73095: Gravois-----	Very limited: low strength (very limited) wetness (limited) shrink-swell (slightly limited)	1.00 0.76 0.27	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (bottom layer)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (bottom layer)	1.00 1.00 1.00	Very limited: slope (very limited) wetness (limited) too clayey (moderately limited)	1.00 0.76 0.42	Very limited: slope (very limited) cutbanks cave (very limited) wetness (very limited)	1.00 1.00 1.00
73101: Wrengart-----	Very limited: low strength (very limited) shrink-swell (moderately limited) wetness (slightly limited)	1.00 0.45 0.03	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Limited: too clayey (limited) too acid (moderately limited) wetness (slightly limited)	0.72 0.42 0.03	Very limited: cutbanks cave (very limited) wetness (limited) too clayey (slightly limited)	1.00 0.99 0.12
73112: Gunlock-----	Very limited: low strength (very limited) wetness (limited) shrink-swell (moderately limited)	1.00 0.82 0.45	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Limited: wetness (limited) too clayey (limited)	0.82 0.77	Very limited: cutbanks cave (very limited) wetness (very limited) too clayey (very limited)	1.00 1.00 1.00
73250: Gatewood-----	Very limited: low strength (very limited) depth to bedrock (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: depth to bedrock (very limited) too clayey (very limited) small stones (limited)	1.00 1.00 0.88	Very limited: hard bedrock <40" (very limited) cutbanks cave (very limited) wetness (very limited)	1.00 1.00 1.00

Table 15.--Construction Materials and Excavating--Continued

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73250: Moko-----	Very limited: depth to bedrock (very limited)	1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 0.75	Very limited: depth to bedrock (very limited) small stones (very limited) large surface stones (limited)	1.00 1.00 0.70	Very limited: hard bedrock <40" (very limited) cutbanks cave (slightly limited)	1.00 0.29
73251: Gatewood-----	Very limited: low strength (very limited) depth to bedrock (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: depth to bedrock (very limited) too clayey (very limited) small stones (limited)	1.00 1.00 0.88	Very limited: hard bedrock <40" (very limited) cutbanks cave (very limited) wetness (very limited)	1.00 1.00 1.00
Moko-----	Very limited: depth to bedrock (very limited)	1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 0.75	Very limited: depth to bedrock (very limited) small stones (very limited) large surface stones (limited)	1.00 1.00 0.70	Very limited: hard bedrock <40" (very limited) slope (moderately limited) cutbanks cave (slightly limited)	1.00 0.37 0.29
73253: Ocie-----	Very limited: low strength (very limited) shrink-swell (limited) depth to bedrock (moderately limited)	1.00 0.95 0.51	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: too clayey (very limited) small stones (moderately limited) too acid (moderately limited)	1.00 0.50 0.48	Very limited: cutbanks cave (very limited) too clayey (very limited) wetness (very limited)	1.00 1.00 1.00
73254: Ocie-----	Very limited: low strength (very limited) shrink-swell (limited) depth to bedrock (moderately limited)	1.00 0.95 0.51	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: too clayey (very limited) large surface stones (limited) slope (limited)	1.00 0.70 0.63	Very limited: cutbanks cave (very limited) too clayey (very limited) wetness (very limited)	1.00 1.00 1.00

Table 15.--Construction Materials and Excavating--Continued

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73255: Ocie-----	Very limited: low strength (very limited) shrink-swell (limited) depth to bedrock (slightly limited)	1.00 0.94 0.12	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: slope (very limited) too clayey (very limited) large surface stones (very limited)	1.00 1.00 1.00	Very limited: slope (very limited) cutbanks cave (very limited) too clayey (very limited)	1.00 1.00 1.00
73256: Arkana-----	Very limited: low strength (very limited) depth to bedrock (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: too clayey (very limited) small stones (very limited) depth to bedrock (limited)	1.00 1.00 0.83	Very limited: hard bedrock <40" (very limited) too clayey (very limited) cutbanks cave (slightly limited)	1.00 1.00 0.29
73257: Caneyville----	Very limited: low strength (very limited) depth to bedrock (very limited) shrink-swell (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: too clayey (very limited) depth to bedrock (limited)	1.00 0.68	Very limited: hard bedrock <40" (very limited) too clayey (limited) cutbanks cave (slightly limited)	1.00 0.67 0.29
73258: Cotton-----	Very limited: low strength (very limited) wetness (very limited) shrink-swell (limited)	1.00 1.00 0.99	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Very limited: wetness (very limited) too clayey (very limited) too acid (moderately limited)	1.00 1.00 0.42	Very limited: wetness (very limited) cutbanks cave (very limited) too clayey (moderately limited)	1.00 1.00 0.31
73259: Cotton-----	Very limited: low strength (very limited) wetness (very limited) shrink-swell (limited)	1.00 1.00 0.99	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Very limited: wetness (very limited) too clayey (very limited) too acid (moderately limited)	1.00 1.00 0.42	Very limited: wetness (very limited) cutbanks cave (very limited) too clayey (moderately limited)	1.00 1.00 0.31

Table 15.--Construction Materials and Excavating--Continued

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73260: Maplewood-----	Very limited: low strength (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: too clayey (very limited) wetness (very limited) too acid (slightly limited)	1.00 1.00 0.12	Very limited: wetness (very limited) cutbanks cave (very limited) too clayey (very limited)	1.00 1.00 1.00
73261: Wrengart-----	Very limited: low strength (very limited) shrink-swell (moderately limited) wetness (slightly limited)	1.00 0.45 0.03	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Limited: too clayey (limited) too acid (moderately limited) wetness (slightly limited)	0.72 0.42 0.03	Very limited: cutbanks cave (very limited) wetness (limited) too clayey (slightly limited)	1.00 0.99 0.12
73262: Wrengart-----	Very limited: low strength (very limited) shrink-swell (moderately limited) wetness (slightly limited)	1.00 0.45 0.03	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Limited: too clayey (limited) slope (limited) too acid (moderately limited)	0.72 0.63 0.42	Very limited: cutbanks cave (very limited) wetness (limited) slope (limited)	1.00 0.99 0.63
73263: Wrengart-----	Very limited: low strength (very limited) shrink-swell (moderately limited) slope (slightly limited)	1.00 0.45 0.25	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: slope (very limited) too clayey (limited) too acid (moderately limited)	1.00 0.72 0.42	Very limited: cutbanks cave (very limited) slope (very limited) wetness (limited)	1.00 1.00 0.99
74634: Hartville-----	Very limited: low strength (very limited) shrink-swell (very limited) wetness (limited)	1.00 1.00 0.86	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Limited: wetness (limited) too clayey (limited) too acid (slightly limited)	0.86 0.83 0.06	Very limited: wetness (very limited) cutbanks cave (slightly limited) too clayey (slightly limited)	1.00 0.29 0.18

Table 15.--Construction Materials and Excavating--Continued

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74659: Deible-----	Very limited: wetness (very limited) low strength (very limited)	1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) flooding (moderately limited) too clayey (moderately limited)	1.00 0.60 0.35
74678: Racoon-----	Very limited: wetness (very limited) low strength (very limited) shrink-swell (slightly limited)	1.00 1.00 0.15	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) flooding (moderately limited) too clayey (moderately limited)	1.00 0.60 0.44
75376: Cedargap-----	Not limited		Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Possible: excess fines (bottom layer) possible source (thickest layer)	1.00 0.50	Very limited: small stones (very limited) too sandy (moderately limited) too clayey (moderately limited)	1.00 0.34 0.33	Very limited: cutbanks cave (very limited) wetness (limited) flooding (moderately limited)	1.00 0.61 0.60
75387: Hacreek-----	Very limited: low strength (very limited) wetness (very limited) shrink-swell (moderately limited)	1.00 1.00 0.45	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: wetness (very limited) too clayey (limited)	1.00 0.78	Very limited: wetness (very limited) flooding (moderately limited) cutbanks cave (slightly limited)	1.00 0.60 0.29
75399: Jamesfin-----	Very limited: low strength (very limited)	1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Not limited		Moderately limited: flooding (moderately limited) cutbanks cave (slightly limited) wetness (slightly limited)	0.60 0.29 0.16

Table 15.--Construction Materials and Excavating--Continued

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75415: Jemerson-----	Very limited: low strength (very limited) shrink-swell (slightly limited)	1.00 0.29	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Not limited		Very limited: cutbanks cave (very limited) flooding (moderately limited) wetness (moderately limited)	1.00 0.60 0.47
75456: Racket-----	Slightly limited: shrink-swell (slightly limited)	0.10	Improbable: excess fines (thickest layer) excess fines (bottom layer) small stones (bottom layer)	1.00 1.00 0.30	Possible: excess fines (thickest layer) excess fines (bottom layer) small stones (bottom layer)	0.99 0.99 0.30	Very limited: area reclaim (very limited)	1.00	Very limited: cutbanks cave (very limited) flooding (moderately limited) wetness (slightly limited)	1.00 0.60 0.24
75457: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Jamesfin-----	Very limited: low strength (very limited)	1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Not limited		Moderately limited: flooding (moderately limited) cutbanks cave (slightly limited) wetness (slightly limited)	0.60 0.29 0.16
75458: Tanglenook----	Very limited: low strength (very limited) shrink-swell (very limited) wetness (very limited)	1.00 1.00 1.00	Improbable: excess fines (thickest layer) excess fines (bottom layer)	1.00 1.00	Improbable: excess fines (bottom layer) excess fines (thickest layer)	1.00 1.00	Very limited: too clayey (very limited) wetness (very limited) too acid (slightly limited)	1.00 1.00 0.18	Very limited: wetness (very limited) too clayey (limited) flooding (moderately limited)	1.00 0.93 0.60
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 15.--Construction Materials and Excavating--Continued

Map symbol and soil name	Roadfill		Source for sand		Source for gravel		Topsoil		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
99012: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 16.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15002: McGirk-----	Not limited		Moderately limited: percs slowly (moderately limited)	0.39	Moderately limited: percs slowly (moderately limited)	0.39	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00
60001: Menfro-----	Moderately limited: seepage (moderately limited) slope (moderately limited)	0.50 0.45	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Moderately limited: slope (moderately limited)	0.45	Moderately limited: slope (moderately limited)	0.45
60003: Menfro-----	Limited: slope (limited) seepage (moderately limited)	0.99 0.50	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Limited: slope (limited)	0.99	Limited: slope (limited)	0.99
60004: Menfro-----	Very limited: slope (very limited) seepage (moderately limited)	1.00 0.50	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00
60005: Menfro-----	Very limited: slope (very limited) seepage (moderately limited)	1.00 0.50	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00
60051: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Moderately limited: slope (moderately limited)	0.45	Very limited: slope (very limited) percs slowly (slightly limited)	1.00 0.19	Very limited: slope (very limited) percs slowly (slightly limited)	1.00 0.19	Moderately limited: slope (moderately limited) wetness (slightly limited)	0.45 0.09	Moderately limited: slope (moderately limited) wetness (slightly limited)	0.45 0.09

Table 16.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60052: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Udorthents----	Limited: slope (limited) depth to bedrock (slightly limited)	0.70 0.03	Very limited: slope (very limited) percs slowly (moderately limited) large stones (slightly limited)	1.00 0.39 0.30	Very limited: droughty (very limited) large stones (very limited) slope (very limited)	1.00 1.00 1.00	Very limited: large stones (very limited) slope (limited) wetness (slightly limited)	1.00 0.70 0.09	Very limited: large stones (very limited) droughty (very limited) slope (limited)	1.00 1.00 0.70
64002: Freeburg-----	Not limited		Slightly limited: percs slowly (slightly limited)	0.13	Slightly limited: percs slowly (slightly limited)	0.13	Limited: wetness (limited)	0.68	Limited: wetness (limited)	0.68
64007: Freeburg-----	Not limited		Moderately limited: flooding (moderately limited) percs slowly (slightly limited)	0.60 0.13	Moderately limited: flooding (moderately limited) percs slowly (slightly limited)	0.60 0.13	Limited: wetness (limited)	0.68	Limited: wetness (limited)	0.68
64010: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Not limited		Slightly limited: percs slowly (slightly limited)	0.13	Slightly limited: percs slowly (slightly limited)	0.13	Limited: wetness (limited)	0.68	Limited: wetness (limited)	0.68
64011: Kliever-----	Moderately limited: seepage (moderately limited)	0.50	Slightly limited: slope (slightly limited)	0.10	Slightly limited: slope (slightly limited)	0.10	Not limited		Not limited	
64012: Kliever-----	Moderately limited: seepage (moderately limited) slope (moderately limited)	0.50 0.45	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Moderately limited: slope (moderately limited)	0.45	Moderately limited: slope (moderately limited)	0.45

Table 16.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64013: Kliever-----	Limited: slope (limited) seepage (moderately limited)	0.99 0.50	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Limited: slope (limited)	0.99	Limited: slope (limited)	0.99
64014: Kliever-----	Very limited: slope (very limited) seepage (moderately limited)	1.00 0.50	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00
66000: Moniteau-----	Not limited		Moderately limited: flooding (moderately limited) percs slowly (slightly limited)	0.60 0.13	Moderately limited: flooding (moderately limited) percs slowly (slightly limited)	0.60 0.13	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00
66004: Dockery-----	Moderately limited: seepage (moderately limited)	0.50	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Moderately limited: wetness (moderately limited)	0.44	Moderately limited: wetness (moderately limited)	0.44
66006: Waldron-----	Not limited		Moderately limited: flooding (moderately limited) percs slowly (moderately limited)	0.60 0.39	Moderately limited: flooding (moderately limited) slow intake (moderately limited) percs slowly (moderately limited)	0.60 0.60 0.39	Moderately limited: wetness (moderately limited)	0.44	Moderately limited: wetness (moderately limited)	0.44
66009: Haynie-----	Moderately limited: seepage (moderately limited)	0.50	Moderately limited: flooding (moderately limited)	0.60	Moderately limited: flooding (moderately limited)	0.60	Not limited		Not limited	

Table 16.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66010: Sarpy-----	Very limited: seepage (very limited)	1.00	Limited: flooding (limited)	0.90	Very limited: fast intake (very limited) flooding (limited) droughty (limited)	1.00 0.90 0.69	Very limited: too sandy (very limited)	1.00	Limited: droughty (limited)	0.69
66026: Blake-----	Moderately limited: seepage (moderately limited)	0.50	Moderately limited: flooding (moderately limited)	0.60	Moderately limited: flooding (moderately limited)	0.60	Not limited		Not limited	
66027: Haynie-----	Moderately limited: seepage (moderately limited)	0.50	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Not limited		Not limited	
66028: Leta-----	Moderately limited: seepage (moderately limited)	0.50	Moderately limited: flooding (moderately limited) percs slowly (moderately limited)	0.60 0.39	Moderately limited: flooding (moderately limited) slow intake (moderately limited) percs slowly (moderately limited)	0.60 0.60 0.39	Moderately limited: wetness (moderately limited)	0.44	Moderately limited: wetness (moderately limited)	0.44
70023: Eldon-----	Moderately limited: slope (moderately limited)	0.31	Limited: slope (limited) percs slowly (slightly limited)	0.98 0.13	Limited: slope (limited) percs slowly (slightly limited)	0.98 0.13	Moderately limited: slope (moderately limited)	0.31	Moderately limited: slope (moderately limited)	0.31
70029: Moko-----	Very limited: slope (very limited) bedrock <20 in. (very limited)	1.00 1.00	Very limited: slope (very limited) shallow to bedrock (very limited) large surface stones (limited)	1.00 1.00 0.79	Very limited: droughty (very limited) slope (very limited) shallow to bedrock (very limited)	1.00 1.00 1.00	Very limited: slope (very limited) depth to bedrock (very limited) large surface stones (limited)	1.00 1.00 0.79	Very limited: slope (very limited) droughty (very limited) bedrock <20 in. (very limited)	1.00 1.00 1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 16.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70046: Sacville-----	Slightly limited: slope (slightly limited)	0.10	Moderately limited: slope (moderately limited) percs slowly (moderately limited)	0.40 0.39	Moderately limited: slope (moderately limited) percs slowly (moderately limited)	0.40 0.39	Very limited: wetness (very limited) slope (slightly limited)	1.00 0.10	Very limited: wetness (very limited) slope (slightly limited)	1.00 0.10
73012: Gravois-----	Moderately limited: slope (moderately limited)	0.31	Limited: slope (limited) percs slowly (moderately limited)	0.98 0.39	Limited: slope (limited) percs slowly (moderately limited)	0.98 0.39	Moderately limited: wetness (moderately limited) slope (moderately limited)	0.55 0.31	Moderately limited: wetness (moderately limited) slope (moderately limited)	0.55 0.31
73035: Gravois-----	Limited: slope (limited)	0.89	Very limited: slope (very limited) percs slowly (moderately limited)	1.00 0.39	Very limited: slope (very limited) percs slowly (moderately limited)	1.00 0.39	Limited: slope (limited) wetness (moderately limited)	0.89 0.55	Limited: slope (limited) wetness (moderately limited)	0.89 0.55
73040: Maplewood-----	Not limited		Slightly limited: percs slowly (slightly limited) slope (slightly limited)	0.13 0.10	Slightly limited: droughty (slightly limited) percs slowly (slightly limited) slope (slightly limited)	0.14 0.13 0.10	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.14
73041: Maplewood-----	Moderately limited: slope (moderately limited)	0.45	Very limited: slope (very limited) percs slowly (slightly limited)	1.00 0.13	Very limited: slope (very limited) droughty (slightly limited) percs slowly (slightly limited)	1.00 0.20 0.13	Very limited: wetness (very limited) slope (moderately limited)	1.00 0.45	Very limited: wetness (very limited) slope (moderately limited) droughty (slightly limited)	1.00 0.45 0.20

Table 16.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73042: Niangua-----	Very limited: slope (very limited) depth to bedrock (moderately limited)	1.00 0.50	Very limited: slope (very limited) large surface stones (very limited) percs slowly (slightly limited)	1.00 1.00 0.13	Very limited: slope (very limited) large surface stones (very limited) percs slowly (slightly limited)	1.00 1.00 0.13	Very limited: slope (very limited) large surface stones (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.39	Very limited: slope (very limited) large surface stones (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.50
Bardley-----	Very limited: slope (very limited) depth to bedrock (limited) seepage (moderately limited)	1.00 0.89 0.50	Very limited: slope (very limited) large surface stones (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.46	Very limited: slope (very limited) large surface stones (very limited) droughty (limited)	1.00 1.00 0.66	Very limited: slope (very limited) depth to bedrock (very limited) large surface stones (very limited)	1.00 1.00 1.00	Very limited: slope (very limited) large surface stones (very limited) depth to bedrock (limited)	1.00 1.00 0.89
73048: Rueter-----	Very limited: seepage (very limited) slope (moderately limited)	1.00 0.31	Limited: slope (limited) large stones (limited)	0.98 0.75	Limited: slope (limited) droughty (moderately limited)	0.98 0.35	Limited: large stones (limited) slope (moderately limited)	0.83 0.31	Limited: large stones (limited) droughty (moderately limited) slope (moderately limited)	0.83 0.35 0.31
73050: Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited: slope (very limited) depth to bedrock (limited) seepage (moderately limited)	1.00 0.89 0.50	Very limited: slope (very limited) large surface stones (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.46	Very limited: slope (very limited) large surface stones (very limited) droughty (limited)	1.00 1.00 0.66	Very limited: slope (very limited) depth to bedrock (very limited) large surface stones (very limited)	1.00 1.00 1.00	Very limited: slope (very limited) large surface stones (very limited) depth to bedrock (limited)	1.00 1.00 0.89
73088: Rueter-----	Very limited: seepage (very limited) slope (limited)	1.00 0.99	Very limited: slope (very limited) large stones (very limited) large surface stones (limited)	1.00 1.00 0.79	Very limited: slope (very limited) large surface stones (limited) droughty (moderately limited)	1.00 0.79 0.43	Very limited: large stones (very limited) slope (limited) large surface stones (limited)	1.00 0.99 0.79	Very limited: large stones (very limited) slope (limited) large surface stones (limited)	1.00 0.99 0.79

Table 16.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73089: Rueter-----	Very limited: slope (very limited) seepage (very limited)	1.00 1.00	Very limited: slope (very limited) large stones (very limited) large surface stones (limited)	1.00 1.00 0.79	Very limited: slope (very limited) large surface stones (limited) droughty (moderately limited)	1.00 0.79 0.43	Very limited: slope (very limited) large stones (very limited) large surface stones (limited)	1.00 1.00 0.79	Very limited: slope (very limited) large stones (very limited) large surface stones (limited)	1.00 1.00 0.79
73095: Gravois-----	Very limited: slope (very limited)	1.00	Very limited: slope (very limited) percs slowly (moderately limited)	1.00 0.39	Very limited: slope (very limited) percs slowly (moderately limited)	1.00 0.39	Very limited: slope (very limited) wetness (moderately limited)	1.00 0.55	Very limited: slope (very limited) wetness (moderately limited)	1.00 0.55
73101: Wrengart-----	Moderately limited: seepage (moderately limited) slope (moderately limited)	0.50 0.45	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Moderately limited: slope (moderately limited) wetness (slightly limited)	0.45 0.13	Moderately limited: slope (moderately limited) wetness (slightly limited)	0.45 0.13
73112: Gunlock-----	Moderately limited: slope (moderately limited)	0.31	Limited: slope (limited) percs slowly (slightly limited)	0.98 0.13	Limited: slope (limited) percs slowly (slightly limited)	0.98 0.13	Moderately limited: wetness (moderately limited) slope (moderately limited)	0.58 0.31	Moderately limited: wetness (moderately limited) slope (moderately limited)	0.58 0.31
73250: Gatewood-----	Limited: depth to bedrock (limited) slope (moderately limited)	0.94 0.31	Limited: slope (limited) large surface stones (limited) depth to bedrock (limited)	0.98 0.70 0.66	Limited: slope (limited) droughty (limited) large surface stones (limited)	0.98 0.89 0.70	Very limited: depth to bedrock (very limited) large surface stones (limited) wetness (moderately limited)	1.00 0.70 0.36	Limited: depth to bedrock (limited) droughty (limited) large surface stones (limited)	0.94 0.89 0.70
Moko-----	Very limited: bedrock <20 in. (very limited) slope (moderately limited)	1.00 0.31	Very limited: shallow to bedrock (very limited) slope (limited) large surface stones (limited)	1.00 0.98 0.70	Very limited: droughty (very limited) shallow to bedrock (very limited) slope (limited)	1.00 1.00 0.98	Very limited: depth to bedrock (very limited) large surface stones (limited) slope (moderately limited)	1.00 0.70 0.31	Very limited: droughty (very limited) bedrock <20 in. (very limited) large surface stones (limited)	1.00 1.00 0.70

Table 16.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73251: Gatewood-----	Limited: depth to bedrock (limited) slope (limited)	0.94 0.89	Very limited: slope (very limited) large surface stones (limited) depth to bedrock (limited)	1.00 0.70 0.66	Very limited: slope (very limited) droughty (limited) large surface stones (limited)	1.00 0.89 0.70	Very limited: depth to bedrock (very limited) slope (limited) large surface stones (limited)	1.00 0.89 0.70	Limited: depth to bedrock (limited) slope (limited) droughty (limited)	0.94 0.89 0.89
Moko-----	Very limited: bedrock <20 in. (very limited) slope (limited)	1.00 0.89	Very limited: slope (very limited) shallow to bedrock (very limited) large surface stones (limited)	1.00 1.00 0.70	Very limited: droughty (very limited) slope (very limited) shallow to bedrock (very limited)	1.00 1.00 1.00	Very limited: depth to bedrock (very limited) slope (limited) large surface stones (limited)	1.00 0.89 0.70	Very limited: droughty (very limited) bedrock <20 in. (very limited) slope (limited)	1.00 1.00 0.89
73253: Ocie-----	Moderately limited: depth to bedrock (moderately limited) seepage (moderately limited) slope (slightly limited)	0.60 0.50 0.10	Moderately limited: slope (moderately limited) percs slowly (moderately limited)	0.40 0.39	Moderately limited: slope (moderately limited) percs slowly (moderately limited)	0.40 0.39	Moderately limited: depth to bedrock (moderately limited) wetness (slightly limited) slope (slightly limited)	0.51 0.28 0.10	Moderately limited: depth to bedrock (moderately limited) wetness (slightly limited) slope (slightly limited)	0.60 0.28 0.10
73254: Ocie-----	Limited: slope (limited) depth to bedrock (moderately limited) seepage (moderately limited)	0.99 0.60 0.50	Very limited: slope (very limited) large surface stones (limited) percs slowly (moderately limited)	1.00 0.70 0.39	Very limited: slope (very limited) large surface stones (limited) percs slowly (moderately limited)	1.00 0.70 0.39	Limited: slope (limited) large surface stones (limited) depth to bedrock (moderately limited)	0.99 0.70 0.51	Limited: slope (limited) large surface stones (limited) depth to bedrock (moderately limited)	0.99 0.70 0.60
73255: Ocie-----	Very limited: slope (very limited) seepage (moderately limited) depth to bedrock (moderately limited)	1.00 0.50 0.35	Very limited: slope (very limited) large surface stones (very limited) percs slowly (moderately limited)	1.00 1.00 0.39	Very limited: slope (very limited) large surface stones (very limited) percs slowly (moderately limited)	1.00 1.00 0.39	Very limited: slope (very limited) large surface stones (very limited) wetness (slightly limited)	1.00 1.00 0.28	Very limited: slope (very limited) large surface stones (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.35

Table 16.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73256: Arkana-----	Limited: depth to bedrock (limited) slope (moderately limited)	0.81 0.31	Limited: slope (limited) percs slowly (moderately limited) depth to bedrock (slightly limited)	0.98 0.39 0.21	Limited: slope (limited) percs slowly (moderately limited) depth to bedrock (slightly limited)	0.98 0.39 0.21	Very limited: depth to bedrock (very limited) slope (moderately limited) large stones (slightly limited)	1.00 0.31 0.01	Limited: depth to bedrock (limited) slope (moderately limited) droughty (slightly limited)	0.81 0.31 0.03
73257: Caneyville----	Limited: depth to bedrock (limited) slope (moderately limited)	0.77 0.31	Limited: slope (limited) percs slowly (slightly limited) depth to bedrock (slightly limited)	0.98 0.13 0.13	Limited: slope (limited) percs slowly (slightly limited) depth to bedrock (slightly limited)	0.98 0.13 0.13	Very limited: depth to bedrock (very limited) slope (moderately limited)	1.00 0.31	Limited: depth to bedrock (limited) slope (moderately limited)	0.77 0.31
73258: Cotton-----	Not limited		Slightly limited: percs slowly (slightly limited)	0.13	Slightly limited: percs slowly (slightly limited)	0.13	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00
73259: Cotton-----	Moderately limited: slope (moderately limited)	0.31	Limited: slope (limited) percs slowly (slightly limited)	0.98 0.13	Limited: slope (limited) percs slowly (slightly limited)	0.98 0.13	Very limited: wetness (very limited) slope (moderately limited)	1.00 0.31	Very limited: wetness (very limited) slope (moderately limited)	1.00 0.31
73260: Maplewood----	Moderately limited: depth to bedrock (moderately limited)	0.50	Slightly limited: percs slowly (slightly limited) slope (slightly limited)	0.13 0.10	Slightly limited: droughty (slightly limited) percs slowly (slightly limited) slope (slightly limited)	0.16 0.13 0.10	Very limited: wetness (very limited) depth to bedrock (moderately limited)	1.00 0.39	Very limited: wetness (very limited) depth to bedrock (moderately limited) droughty (slightly limited)	1.00 0.50 0.16
73261: Wrengart-----	Moderately limited: seepage (moderately limited) slope (moderately limited)	0.50 0.45	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Moderately limited: slope (moderately limited) wetness (slightly limited)	0.45 0.13	Moderately limited: slope (moderately limited) wetness (slightly limited)	0.45 0.13

Table 16.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73262: Wrengart-----	Limited: slope (limited) seepage (moderately limited)	0.99 0.50	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Limited: slope (limited) wetness (slightly limited)	0.99 0.13	Limited: slope (limited) wetness (slightly limited)	0.99 0.13
73263: Wrengart-----	Very limited: slope (very limited) seepage (moderately limited)	1.00 0.50	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited) wetness (slightly limited)	1.00 0.13	Very limited: slope (very limited) wetness (slightly limited)	1.00 0.13
74634: Hartville-----	Moderately limited: slope (moderately limited)	0.31	Limited: slope (limited) percs slowly (moderately limited)	0.98 0.39	Limited: slope (limited) percs slowly (moderately limited)	0.98 0.39	Moderately limited: wetness (moderately limited) slope (moderately limited)	0.60 0.31	Moderately limited: wetness (moderately limited) slope (moderately limited)	0.60 0.31
74659: Deible-----	Not limited		Moderately limited: flooding (moderately limited)	0.60	Moderately limited: flooding (moderately limited) droughty (moderately limited)	0.60 0.59	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) droughty (moderately limited)	1.00 0.59
74678: Raccoon-----	Not limited		Moderately limited: flooding (moderately limited) percs slowly (moderately limited)	0.60 0.39	Moderately limited: flooding (moderately limited) percs slowly (moderately limited)	0.60 0.39	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00
75376: Cedargap-----	Moderately limited: seepage (moderately limited)	0.50	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Not limited		Not limited	
75387: Hacreek-----	Not limited		Moderately limited: flooding (moderately limited) percs slowly (slightly limited)	0.60 0.13	Moderately limited: flooding (moderately limited) percs slowly (slightly limited)	0.60 0.13	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00

Table 16.--Water Management--Continued

Map symbol and soil name	Pond reservoir areas		Drainage		Irrigation		Terraces and diversions		Grassed waterways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75399: Jamesfin-----	Moderately limited: seepage (moderately limited)	0.50	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Not limited		Not limited	
75415: Jemerson-----	Moderately limited: seepage (moderately limited)	0.50	Moderately limited: flooding (moderately limited)	0.60	Moderately limited: flooding (moderately limited)	0.60	Not limited		Not limited	
75456: Racket-----	Moderately limited: seepage (moderately limited)	0.50	Limited: flooding (limited) large stones (moderately limited)	0.90 0.51	Limited: flooding (limited)	0.90	Not limited		Not limited	
75457: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Jamesfin-----	Moderately limited: seepage (moderately limited)	0.50	Moderately limited: flooding (moderately limited)	0.60	Moderately limited: flooding (moderately limited)	0.60	Not limited		Not limited	
75458: Tanglenook----	Not limited		Moderately limited: flooding (moderately limited) percs slowly (moderately limited)	0.60 0.39	Moderately limited: slow intake (moderately limited) flooding (moderately limited) percs slowly (moderately limited)	0.60 0.60 0.39	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	
99012: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 17.--Waste Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the potential limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15002: McGirk-----	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.99	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.99	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.99	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.99	Very limited: percs slowly (very limited) wetness (very limited) too acid (slightly limited)	1.00 1.00 0.01
60001: Menfro-----	Slightly limited: slope (slightly limited)	0.15	Slightly limited: slope (slightly limited)	0.15	Moderately limited: slope (moderately limited)	0.45	Moderately limited: slope (moderately limited)	0.45	Very limited: percs slowly (very limited) slope (very limited)	1.00 1.00
60003: Menfro-----	Limited: slope (limited)	0.76	Limited: slope (limited)	0.76	Limited: slope (limited)	0.99	Limited: slope (limited)	0.99	Very limited: percs slowly (very limited) slope (very limited)	1.00 1.00
60004: Menfro-----	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: percs slowly (very limited) slope (very limited)	1.00 1.00
60005: Menfro-----	Very limited: slope (very limited) too acid (slightly limited)	1.00 0.24	Very limited: slope (very limited) too acid (slightly limited)	1.00 0.24	Very limited: slope (very limited) too acid (slightly limited)	1.00 0.24	Very limited: slope (very limited) too acid (slightly limited)	1.00 0.24	Very limited: percs slowly (very limited) slope (very limited)	1.00 1.00

Table 17.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60051: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Harvester-----	Slightly limited: slope (slightly limited) wetness (slightly limited)	0.15 0.09	Slightly limited: slope (slightly limited) wetness (slightly limited)	0.15 0.09	Moderately limited: slope (moderately limited) wetness (slightly limited)	0.45 0.09	Moderately limited: slope (moderately limited) wetness (slightly limited)	0.45 0.09	Very limited: percs slowly (very limited) wetness (very limited) slope (very limited)	1.00 1.00 1.00
60052: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Udorthents-----	Very limited: droughty (very limited) large stones >35% (very limited) percs slowly (limited)	1.00 1.00 0.99	Very limited: droughty (very limited) large stones >35% (very limited) percs slowly (limited)	1.00 1.00 0.99	Very limited: droughty (very limited) large stones >35% (very limited) percs slowly (limited)	1.00 1.00 0.99	Very limited: large stones >35% (very limited) percs slowly (limited) slope (limited)	1.00 0.99 0.70	Very limited: too stony (very limited) percs slowly (very limited) depth to bedrock (very limited)	1.00 1.00 1.00
64002: Freeburg-----	Limited: wetness (limited)	0.68	Limited: wetness (limited)	0.68	Limited: wetness (limited)	0.68	Limited: wetness (limited)	0.68	Very limited: percs slowly (very limited) wetness (very limited)	1.00 1.00
64007: Freeburg-----	Limited: flooding (limited) wetness (limited) percs slowly (limited)	0.90 0.68 0.61	Limited: flooding (limited) wetness (limited) percs slowly (limited)	0.90 0.68 0.61	Limited: flooding (limited) wetness (limited) percs slowly (limited)	0.90 0.68 0.61	Limited: flooding (limited) wetness (limited) percs slowly (limited)	0.90 0.68 0.61	Very limited: percs slowly (very limited) wetness (very limited) flooding (moderately limited)	1.00 1.00 0.60

Table 17.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64010: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Freeburg-----	Limited: wetness (limited)	0.68	Limited: wetness (limited)	0.68	Limited: wetness (limited)	0.68	Limited: wetness (limited)	0.68	Very limited: percs slowly (very limited)	1.00
	percs slowly (limited)	0.61	percs slowly (limited)	0.61	percs slowly (limited)	0.61	percs slowly (limited)	0.61	wetness (very limited)	1.00
	flooding (slightly limited)	0.30	flooding (slightly limited)	0.30	flooding (slightly limited)	0.30	flooding (slightly limited)	0.30	too acid (slightly limited)	0.01
64011: Kliever-----	Not limited		Not limited		Not limited		Not limited		Very limited: percs slowly (very limited)	1.00
									wetness (limited)	0.82
									slope (slightly limited)	0.08
64012: Kliever-----	Slightly limited: slope (slightly limited)	0.15	Slightly limited: slope (slightly limited)	0.15	Moderately limited: slope (moderately limited)	0.45	Moderately limited: slope (moderately limited)	0.45	Very limited: percs slowly (very limited)	1.00
									slope (very limited)	1.00
									wetness (limited)	0.82
64013: Kliever-----	Limited: slope (limited)	0.76	Limited: slope (limited)	0.76	Limited: slope (limited)	0.99	Limited: slope (limited)	0.99	Very limited: percs slowly (very limited)	1.00
									slope (very limited)	1.00
									wetness (limited)	0.82
64014: Kliever-----	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: slope (very limited)	1.00	Very limited: percs slowly (very limited)	1.00
									slope (very limited)	1.00
									wetness (limited)	0.82

Table 17.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66000: Moniteau-----	Very limited: wetness (very limited) flooding (limited)	1.00 0.90	Very limited: wetness (very limited) flooding (limited)	1.00 0.90	Very limited: wetness (very limited) flooding (limited)	1.00 0.90	Very limited: wetness (very limited) flooding (limited)	1.00 0.90	Very limited: percs slowly (very limited) wetness (very limited) flooding (moderately limited)	1.00 1.00 0.60
66004: Dockery-----	Very limited: flooding (very limited) wetness (moderately limited)	1.00 0.44	Very limited: flooding (very limited) wetness (moderately limited)	1.00 0.44	Very limited: flooding (very limited) wetness (moderately limited)	1.00 0.44	Very limited: flooding (very limited) wetness (moderately limited)	1.00 0.44	Very limited: percs slowly (very limited) wetness (very limited) flooding (very limited)	1.00 1.00 1.00
66006: Waldron-----	Limited: flooding (limited) percs slowly (limited) wetness (moderately limited)	0.90 0.61 0.44	Limited: flooding (limited) percs slowly (limited) wetness (moderately limited)	0.90 0.61 0.44	Limited: flooding (limited) percs slowly (limited) wetness (moderately limited)	0.90 0.61 0.44	Limited: flooding (limited) percs slowly (limited) wetness (moderately limited)	0.90 0.61 0.44	Very limited: percs slowly (very limited) wetness (very limited) flooding (moderately limited)	1.00 1.00 0.60
66009: Haynie-----	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Very limited: percs slowly (very limited) flooding (moderately limited)	1.00 0.60
66010: Sarpy-----	Very limited: flooding (very limited) poor filter (very limited) droughty (limited)	1.00 1.00 0.69	Very limited: flooding (very limited) poor filter (very limited) droughty (limited)	1.00 1.00 0.69	Very limited: flooding (very limited) poor filter (very limited) droughty (limited)	1.00 1.00 0.69	Very limited: flooding (very limited) poor filter (very limited)	1.00 1.00	Very limited: flooding (very limited)	1.00

Table 17.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
66026: Blake-----	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Very limited: percs slowly (very limited) wetness (very limited) flooding (moderately limited)	1.00 1.00 0.60
66027: Haynie-----	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: percs slowly (very limited) flooding (very limited)	1.00 1.00
66028: Leta-----	Limited: percs slowly (limited) flooding (limited) wetness (moderately limited)	0.99 0.90 0.44	Limited: percs slowly (limited) flooding (limited) wetness (moderately limited)	0.99 0.90 0.44	Limited: percs slowly (limited) flooding (limited) wetness (moderately limited)	0.99 0.90 0.44	Limited: percs slowly (limited) flooding (limited) wetness (moderately limited)	0.99 0.90 0.44	Very limited: percs slowly (very limited) wetness (very limited) flooding (moderately limited)	1.00 1.00 0.60
70023: Eldon-----	Not limited		Not limited		Moderately limited: slope (moderately limited)	0.31	Moderately limited: slope (moderately limited)	0.31	Very limited: percs slowly (very limited) slope (limited)	1.00 0.91
70029: Moko-----	Very limited: shallow to bedrock (very limited) droughty (very limited) slope (very limited)	1.00 1.00 1.00	Very limited: droughty (very limited) shallow to bedrock (very limited) slope (very limited)	1.00 1.00 1.00	Very limited: droughty (very limited) slope (very limited) shallow to bedrock (very limited)	1.00 1.00 1.00	Very limited: depth to bedrock (very limited) slope (very limited) large surface stones (limited)	1.00 1.00 0.79	Very limited: percs slowly (very limited) slope (very limited) depth to bedrock (very limited)	1.00 1.00 1.00
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 17.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
70046: Sacville-----	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.61	Very limited: wetness (very limited) percs slowly (limited)	1.00 0.61	Very limited: wetness (very limited) percs slowly (limited) slope (slightly limited)	1.00 0.61 0.10	Very limited: wetness (very limited) percs slowly (limited) slope (slightly limited)	1.00 0.61 0.10	Very limited: percs slowly (very limited) wetness (very limited) slope (moderately limited)	1.00 1.00 0.31
73012: Gravois-----	Limited: percs slowly (limited) wetness (moderately limited)	0.61 0.55	Limited: percs slowly (limited) wetness (moderately limited)	0.61 0.55	Limited: percs slowly (limited) wetness (moderately limited) slope (moderately limited)	0.61 0.55 0.31	Limited: percs slowly (limited) wetness (moderately limited) slope (moderately limited)	0.61 0.55 0.31	Very limited: percs slowly (very limited) wetness (very limited) slope (limited)	1.00 1.00 0.91
73035: Gravois-----	Limited: slope (limited) percs slowly (limited) wetness (moderately limited)	0.68 0.61 0.55	Limited: slope (limited) percs slowly (limited) wetness (moderately limited)	0.68 0.61 0.55	Limited: slope (limited) percs slowly (limited) wetness (moderately limited)	0.89 0.61 0.55	Limited: slope (limited) percs slowly (limited) wetness (moderately limited)	0.89 0.61 0.55	Very limited: percs slowly (very limited) slope (very limited) wetness (very limited)	1.00 1.00 1.00
73040: Maplewood-----	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.14	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.14	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.14	Very limited: wetness (very limited)	1.00	Very limited: percs slowly (very limited) wetness (very limited) slope (slightly limited)	1.00 1.00 0.08
73041: Maplewood-----	Very limited: wetness (very limited) droughty (slightly limited) slope (slightly limited)	1.00 0.20 0.15	Very limited: wetness (very limited) droughty (slightly limited) slope (slightly limited)	1.00 0.20 0.15	Very limited: wetness (very limited) slope (moderately limited) droughty (slightly limited)	1.00 0.45 0.20	Very limited: wetness (very limited) slope (moderately limited)	1.00 0.45	Very limited: percs slowly (very limited) wetness (very limited) slope (very limited)	1.00 1.00 1.00

Table 17.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73042:										
Niangua-----	Very limited: slope (very limited) large surface stones (very limited)	1.00 1.00	Very limited: large surface stones (very limited) slope (very limited)	1.00 1.00	Very limited: slope (very limited) large surface stones (very limited)	1.00 1.00	Very limited: slope (very limited) large surface stones (very limited) depth to bedrock (moderately limited)	1.00 1.00 0.39	Very limited: percs slowly (very limited) slope (very limited) depth to bedrock (very limited)	1.00 1.00 1.00
Bardley-----	Very limited: slope (very limited) large surface stones (very limited) droughty (limited)	1.00 1.00 0.66	Very limited: large surface stones (very limited) slope (very limited) droughty (limited)	1.00 1.00 0.66	Very limited: slope (very limited) large surface stones (very limited) droughty (limited)	1.00 1.00 0.66	Very limited: depth to bedrock (very limited) slope (very limited) large surface stones (very limited)	1.00 1.00 1.00	Very limited: percs slowly (very limited) slope (very limited) depth to bedrock (very limited)	1.00 1.00 1.00
73048:										
Rueter-----	Limited: too acid (limited) droughty (moderately limited)	0.84 0.35	Limited: too acid (limited) droughty (moderately limited)	0.84 0.35	Limited: too acid (limited) droughty (moderately limited) slope (moderately limited)	0.84 0.35 0.31	Limited: too acid (limited) slope (moderately limited)	0.84 0.31	Limited: slope (limited) percs slowly (moderately limited) too cobbly (slightly limited)	0.91 0.32 0.11
73050:										
Rock outcrop--	Not rated		Not rated		Not rated		Not rated		Not rated	
Bardley-----	Very limited: slope (very limited) large surface stones (very limited) droughty (limited)	1.00 1.00 0.66	Very limited: slope (very limited) large surface stones (very limited) droughty (limited)	1.00 1.00 0.66	Very limited: slope (very limited) large surface stones (very limited) droughty (limited)	1.00 1.00 0.66	Very limited: depth to bedrock (very limited) slope (very limited) large surface stones (very limited)	1.00 1.00 1.00	Very limited: percs slowly (very limited) slope (very limited) depth to bedrock (very limited)	1.00 1.00 1.00
73088:										
Rueter-----	Limited: too acid (limited) large surface stones (limited) slope (limited)	0.84 0.79 0.76	Limited: too acid (limited) large surface stones (limited) slope (limited)	0.84 0.79 0.76	Limited: slope (limited) too acid (limited) large surface stones (limited)	0.99 0.84 0.79	Limited: slope (limited) too acid (limited) large surface stones (limited)	0.99 0.84 0.79	Very limited: slope (very limited) too cobbly (limited) large surface stones (limited)	1.00 0.95 0.79

Table 17.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73089: Rueter-----	Very limited: slope (very limited) too acid (limited) large surface stones (limited)	1.00 0.84 0.79	Very limited: slope (very limited) too acid (limited) large surface stones (limited)	1.00 0.84 0.79	Very limited: slope (very limited) too acid (limited) large surface stones (limited)	1.00 0.84 0.79	Very limited: slope (very limited) too acid (limited) large surface stones (limited)	1.00 0.84 0.79	Very limited: slope (very limited) too cobbly (limited) large surface stones (limited)	1.00 0.95 0.79
73095: Gravois-----	Very limited: slope (very limited) percs slowly (limited) wetness (moderately limited)	1.00 0.61 0.55	Very limited: slope (very limited) percs slowly (limited) wetness (moderately limited)	1.00 0.61 0.55	Very limited: slope (very limited) percs slowly (limited) wetness (moderately limited)	1.00 0.61 0.55	Very limited: slope (very limited) percs slowly (limited) wetness (moderately limited)	1.00 0.61 0.55	Very limited: percs slowly (very limited) slope (very limited) wetness (very limited)	1.00 1.00 1.00
73101: Wrengart-----	Slightly limited: slope (slightly limited) wetness (slightly limited)	0.15 0.13	Slightly limited: slope (slightly limited) wetness (slightly limited)	0.15 0.13	Moderately limited: slope (moderately limited) wetness (slightly limited)	0.45 0.13	Moderately limited: slope (moderately limited) wetness (slightly limited)	0.45 0.13	Very limited: percs slowly (very limited) wetness (very limited) slope (very limited)	1.00 1.00 1.00
73112: Gunlock-----	Moderately limited: wetness (moderately limited)	0.58	Moderately limited: wetness (moderately limited)	0.58	Moderately limited: wetness (moderately limited) slope (moderately limited)	0.58 0.31	Moderately limited: wetness (moderately limited) slope (moderately limited)	0.58 0.31	Very limited: percs slowly (very limited) wetness (very limited) slope (limited)	1.00 1.00 0.91
73250: Gatewood-----	Limited: droughty (limited) large surface stones (limited) depth to bedrock (limited)	0.89 0.70 0.66	Limited: droughty (limited) large surface stones (limited) depth to bedrock (limited)	0.89 0.70 0.66	Limited: droughty (limited) large surface stones (limited) depth to bedrock (limited)	0.89 0.70 0.66	Very limited: depth to bedrock (very limited) large surface stones (limited) wetness (moderately limited)	1.00 0.70 0.36	Very limited: percs slowly (very limited) depth to bedrock (very limited) wetness (very limited)	1.00 1.00 1.00

Table 17.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73250: Moko-----	Very limited: shallow to bedrock (very limited) droughty (very limited) large surface stones (limited)	1.00 1.00 0.70	Very limited: droughty (very limited) shallow to bedrock (very limited) large surface stones (limited)	1.00 1.00 0.70	Very limited: droughty (very limited) shallow to bedrock (very limited) large surface stones (limited)	1.00 1.00 0.70	Very limited: depth to bedrock (very limited) large surface stones (limited) slope (moderately limited)	1.00 0.70 0.31	Very limited: percs slowly (very limited) depth to bedrock (very limited) slope (limited)	1.00 1.00 0.91
73251: Gatewood-----	Limited: droughty (limited) large surface stones (limited) slope (limited)	0.89 0.70 0.68	Limited: droughty (limited) large surface stones (limited) slope (limited)	0.89 0.70 0.68	Limited: slope (limited) droughty (limited) large surface stones (limited)	0.89 0.89 0.70	Very limited: depth to bedrock (very limited) slope (limited) large surface stones (limited)	1.00 0.89 0.70	Very limited: percs slowly (very limited) slope (very limited) depth to bedrock (very limited)	1.00 1.00 1.00
Moko-----	Very limited: shallow to bedrock (very limited) droughty (very limited) large surface stones (limited)	1.00 1.00 0.70	Very limited: droughty (very limited) shallow to bedrock (very limited) large surface stones (limited)	1.00 1.00 0.70	Very limited: droughty (very limited) shallow to bedrock (very limited) slope (limited)	1.00 1.00 0.89	Very limited: depth to bedrock (very limited) slope (limited) large surface stones (limited)	1.00 0.89 0.70	Very limited: percs slowly (very limited) slope (very limited) depth to bedrock (very limited)	1.00 1.00 1.00
73253: Ocie-----	Slightly limited: wetness (slightly limited) too acid (slightly limited)	0.28 0.12	Slightly limited: wetness (slightly limited) too acid (slightly limited)	0.28 0.12	Slightly limited: wetness (slightly limited) too acid (slightly limited) slope (slightly limited)	0.28 0.12 0.10	Moderately limited: depth to bedrock (moderately limited) wetness (slightly limited) too acid (slightly limited)	0.51 0.28 0.12	Very limited: percs slowly (very limited) depth to bedrock (very limited) wetness (very limited)	1.00 1.00 1.00
73254: Ocie-----	Limited: slope (limited) large surface stones (limited) wetness (slightly limited)	0.76 0.70 0.28	Limited: slope (limited) large surface stones (limited) wetness (slightly limited)	0.76 0.70 0.28	Limited: slope (limited) large surface stones (limited) wetness (slightly limited)	0.99 0.70 0.28	Limited: slope (limited) large surface stones (limited) depth to bedrock (moderately limited)	0.99 0.70 0.51	Very limited: percs slowly (very limited) slope (very limited) depth to bedrock (very limited)	1.00 1.00 1.00

Table 17.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73255: Ocie-----	Very limited: large surface stones (very limited) slope (limited) wetness (slightly limited)	1.00 0.99 0.28	Very limited: large surface stones (very limited) slope (limited) wetness (slightly limited)	1.00 0.99 0.28	Very limited: slope (very limited) large surface stones (very limited) wetness (slightly limited)	1.00 1.00 0.28	Very limited: slope (very limited) large surface stones (very limited) wetness (slightly limited)	1.00 1.00 0.28	Very limited: percs slowly (very limited) slope (very limited) depth to bedrock (very limited)	1.00 1.00 1.00
73256: Arkana-----	Slightly limited: depth to bedrock (slightly limited) too acid (slightly limited) droughty (slightly limited)	0.21 0.06 0.03	Slightly limited: depth to bedrock (slightly limited) too acid (slightly limited) droughty (slightly limited)	0.21 0.06 0.03	Moderately limited: slope (moderately limited) depth to bedrock (slightly limited) too acid (slightly limited)	0.31 0.21 0.06	Very limited: depth to bedrock (very limited) slope (moderately limited) too acid (slightly limited)	1.00 0.31 0.06	Very limited: percs slowly (very limited) depth to bedrock (very limited) slope (limited)	1.00 1.00 0.91
73257: Caneyville----	Slightly limited: depth to bedrock (slightly limited)	0.13	Slightly limited: depth to bedrock (slightly limited)	0.13	Moderately limited: slope (moderately limited) depth to bedrock (slightly limited)	0.31 0.13	Very limited: depth to bedrock (very limited) slope (moderately limited)	1.00 0.31	Very limited: percs slowly (very limited) depth to bedrock (very limited) slope (limited)	1.00 1.00 0.91
73258: Cotton-----	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00	Very limited: percs slowly (very limited) wetness (very limited) too acid (slightly limited)	1.00 1.00 0.03
73259: Cotton-----	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited)	1.00	Very limited: wetness (very limited) slope (moderately limited)	1.00 0.31	Very limited: wetness (very limited) slope (moderately limited)	1.00 0.31	Very limited: percs slowly (very limited) wetness (very limited) slope (limited)	1.00 1.00 0.91

Table 17.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
73260: Maplewood-----	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.16 	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.16 	Very limited: wetness (very limited) droughty (slightly limited)	1.00 0.16 	Very limited: wetness (very limited) depth to bedrock (moderately limited)	1.00 0.39 	Very limited: percs slowly (very limited) depth to bedrock (very limited) wetness (very limited)	1.00 1.00 1.00
73261: Wrengart-----	Slightly limited: slope (slightly limited) wetness (slightly limited)	0.15 0.13 	Slightly limited: slope (slightly limited) wetness (slightly limited)	0.15 0.13 	Moderately limited: slope (moderately limited) wetness (slightly limited)	0.45 0.13 	Moderately limited: slope (moderately limited) wetness (slightly limited)	0.45 0.13 	Very limited: percs slowly (very limited) wetness (very limited) slope (very limited)	1.00 1.00 1.00
73262: Wrengart-----	Limited: slope (limited) wetness (slightly limited)	0.76 0.13 	Limited: slope (limited) wetness (slightly limited)	0.76 0.13 	Limited: slope (limited) wetness (slightly limited)	0.99 0.13 	Limited: slope (limited) wetness (slightly limited)	0.99 0.13 	Very limited: percs slowly (very limited) slope (very limited) wetness (very limited)	1.00 1.00 1.00
73263: Wrengart-----	Very limited: slope (very limited) wetness (slightly limited)	1.00 0.13 	Very limited: slope (very limited) wetness (slightly limited)	1.00 0.13 	Very limited: slope (very limited) wetness (slightly limited)	1.00 0.13 	Very limited: slope (very limited) wetness (slightly limited)	1.00 0.13 	Very limited: percs slowly (very limited) slope (very limited) wetness (very limited)	1.00 1.00 1.00
74634: Hartville-----	Limited: percs slowly (limited) wetness (moderately limited)	0.99 0.60 	Limited: percs slowly (limited) wetness (moderately limited)	0.99 0.60 	Limited: percs slowly (limited) wetness (moderately limited) slope (moderately limited)	0.99 0.60 0.31 	Limited: percs slowly (limited) wetness (moderately limited) slope (moderately limited)	0.99 0.60 0.31 	Very limited: percs slowly (very limited) wetness (very limited) slope (limited)	1.00 1.00 0.91

Table 17.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74659: Deible-----	Very limited: wetness (very limited) flooding (limited) droughty (moderately limited)	1.00 0.90 0.59	Very limited: wetness (very limited) flooding (limited) droughty (moderately limited)	1.00 0.90 0.59	Very limited: wetness (very limited) flooding (limited) droughty (moderately limited)	1.00 0.90 0.59	Very limited: wetness (very limited) flooding (limited)	1.00 0.90	Very limited: percs slowly (very limited) wetness (very limited) flooding (moderately limited)	1.00 1.00 0.60
74678: Raccoon-----	Very limited: wetness (very limited) percs slowly (limited) flooding (limited)	1.00 0.99 0.90	Very limited: wetness (very limited) percs slowly (limited) flooding (limited)	1.00 0.99 0.90	Very limited: wetness (very limited) percs slowly (limited) flooding (limited)	1.00 0.99 0.90	Very limited: wetness (very limited) percs slowly (limited) flooding (limited)	1.00 0.99 0.90	Very limited: percs slowly (very limited) wetness (very limited) flooding (moderately limited)	1.00 1.00 0.60
75376: Cedargap-----	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: percs slowly (very limited) flooding (very limited) wetness (limited)	1.00 1.00 0.99
75387: Hacreek-----	Very limited: wetness (very limited) flooding (limited) percs slowly (limited)	1.00 0.90 0.61	Very limited: wetness (very limited) flooding (limited) percs slowly (limited)	1.00 0.90 0.61	Very limited: wetness (very limited) flooding (limited) percs slowly (limited)	1.00 0.90 0.61	Very limited: wetness (very limited) flooding (limited) percs slowly (limited)	1.00 0.90 0.61	Very limited: percs slowly (very limited) wetness (very limited) flooding (moderately limited)	1.00 1.00 0.60
75399: Jamesfin-----	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: percs slowly (very limited) flooding (very limited) wetness (limited)	1.00 1.00 0.61

Table 17.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75415: Jemerson-----	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Very limited: percs slowly (very limited) wetness (limited) flooding (moderately limited)	1.00 0.89 0.60
75456: Racket-----	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: flooding (very limited)	1.00	Very limited: percs slowly (very limited) flooding (very limited) wetness (limited)	1.00 1.00 0.69
75457: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	
Jamesfin-----	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Limited: flooding (limited)	0.90	Very limited: percs slowly (very limited) wetness (limited) flooding (moderately limited)	1.00 0.61 0.60
75458: Tanglenook----	Very limited: wetness (very limited) percs slowly (limited) flooding (limited)	1.00 0.99 0.90	Very limited: wetness (very limited) percs slowly (limited) flooding (limited)	1.00 0.99 0.90	Very limited: wetness (very limited) percs slowly (limited) flooding (limited)	1.00 0.99 0.90	Very limited: wetness (very limited) percs slowly (limited) flooding (limited)	1.00 0.99 0.90	Very limited: percs slowly (very limited) wetness (very limited) flooding (moderately limited)	1.00 1.00 0.60
99000: Pits, quarries	Not rated		Not rated		Not rated		Not rated		Not rated	
99001: Water-----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 17.--Waste Management--Continued

Map symbol and soil name	Land application of manure and food-processing waste		Land application of municipal sewage sludge		Disposal of wastewater by irrigation		Treatment of wastewater by slow rate process		Treatment of wastewater by rapid infiltration process	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
99012: Urban land----	Not rated		Not rated		Not rated		Not rated		Not rated	

Table 18.--Engineering Index Properties

(Absence of an entry indicates that data were not estimated. For an explanation of the abbreviations in the USDA texture column, see "Texture, soil" in the Glossary.)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
15002: McGirk-----	0-8	SIL	CL, CL-ML	A-6	0	0	100	100	90-100	70-90	25-40	5-15
	8-15	SICL, SIC	CL	A-7, A-7-6	0	0	100	100	95-100	85-95	40-50	20-30
	15-45	SIC	CH	A-7, A-7-6	0	0	100	85-100	80-100	75-95	55-75	30-50
	45-80	SIC, SICL	CL, CH	A-7, A-7-6	0	0	100	85-100	80-100	70-95	45-75	25-50
60001: Menfro-----	0-6	SIL	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	25-35	5-15
	6-11	SIL	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	11-34	SICL, SIL	CL-ML, CL	A-6, A-7, A-4	0	0	100	100	90-100	70-95	25-45	5-25
	34-60	SIL, SICL	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	90-100	70-95	25-45	5-25
60003: Menfro-----	0-5	SIL	CL-ML, CL	A-6, A-4	0	0	100	100	90-100	70-90	25-35	5-15
	5-28	SICL, SIL	CL-ML, CL	A-4, A-6, A-7	0	0	100	100	90-100	70-95	25-45	5-25
	28-63	SIL, SICL	CL-ML, CL	A-6, A-7, A-4	0	0	100	100	90-100	70-95	25-45	5-25
60004: Menfro-----	0-5	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	5-28	SICL, SIL	CL, CL-ML	A-4, A-7, A-6	0	0	100	100	90-100	70-95	25-45	5-25
	28-63	SIL, SICL	CL-ML, CL	A-4, A-6, A-7	0	0	100	100	90-100	70-95	25-45	5-25
60005: Menfro-----	0-4	SIL	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	4-16	SIL	CL-ML, CL	A-4	0	0	100	100	90-100	70-90	25-35	5-15
	16-29	SICL, SIL	CL, CL-ML	A-4, A-7, A-6	0	0	100	100	90-100	70-95	25-45	5-25
	29-62	SIL, SICL	CL-ML, CL	A-7, A-4, A-6	0	0	100	100	90-100	70-95	25-45	5-25
60051: Urban land.												
Harvester-----	0-5	SIL	CL	A-6	0	0	100	100	90-100	70-90	25-35	10-15
	5-80	SICL, SIL	CL	A-6, A-7-6	0	0	100	100	90-100	70-95	25-45	15-20
60052: Urban land.												
Udorthents-----	0-10	BYV-C	CH	A-7	25-40	15-40	65-95	60-90	60-90	55-80	55-85	30-60
	10-71	BYV-C, BYV-SIC	CH	A-7	25-45	5-40	65-95	60-90	60-90	55-80	55-85	30-60
	71-80	WB	---	---	---	---	---	---	---	---	---	---

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
64002:												
Freeburg-----	0-7	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	7-60	SICL, SIL	CL	A-4, A-6, A-7	0	0	100	100	90-100	70-95	25-45	5-25
64007:												
Freeburg-----	0-8	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	8-18	SIL	CL	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	18-37	SICL, SIL	CL	A-7-6, A-7, A-6	0	0	100	100	95-100	85-95	30-45	10-20
	37-65	SICL, SIL	CL	A-6, A-7	0	0	100	100	90-100	70-95	30-45	10-20
64010:												
Urban land.												
Freeburg-----	0-8	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	8-18	SIL	CL	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	18-37	SIL, SICL	CL	A-7-6, A-7, A-6	0	0	100	100	95-100	85-95	30-45	10-20
	37-65	SICL, SIL	CL	A-6, A-7	0	0	100	100	90-100	70-95	30-45	10-20
64011:												
Kliever-----	0-8	L	SC-SM	A-4	0	0	100	100	85-95	60-75	20-25	5-10
	8-17	L, SIL	SC-SM	A-4	0	0	100	100	85-100	60-90	20-30	5-10
	17-52	L, CL	SC-SM	A-6	0	0	100	100	85-95	60-80	30-40	10-20
	52-64	SIL, L	SC-SM	A-4	0	0	100	100	85-100	60-90	20-35	5-15
	64-80	SICL, L	CL	A-6	0	0	100	100	85-100	60-95	30-45	10-20
64012:												
Kliever-----	0-8	L	SC-SM	A-4	0	0	100	100	85-95	60-75	20-25	5-10
	8-17	L, SIL	SC-SM	A-4	0	0	100	100	85-100	60-90	20-30	5-10
	17-52	L, CL	SC-SM	A-6	0	0	100	100	85-95	60-80	30-40	10-20
	52-64	SIL, L	SC-SM	A-4	0	0	100	100	85-100	60-90	20-35	5-15
	64-80	SICL, L	CL	A-6	0	0	100	100	85-100	60-95	30-45	10-20
64013:												
Kliever-----	0-8	L	SC-SM	A-4	0	0	100	100	85-95	60-75	20-25	5-10
	8-52	L, CL	SC-SM	A-6	0	0	100	100	85-95	60-80	30-40	10-20
	52-64	SIL, L	SC-SM	A-4	0	0	100	100	85-100	60-90	20-35	5-15
	64-80	SICL, L	CL	A-6	0	0	100	100	85-100	60-95	30-45	10-20
64014:												
Kliever-----	0-8	L	SC-SM	A-4	0	0	100	100	85-95	60-75	20-25	5-10
	8-52	L, CL	SC-SM	A-6	0	0	100	100	85-95	60-80	30-40	10-20
	52-64	SIL, L	SC-SM	A-4	0	0	100	100	85-100	60-90	20-35	5-15
	64-80	SICL, L	CL	A-6	0	0	100	100	85-100	60-95	30-45	10-20

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
66000:												
Moniteau-----	0-7	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	7-14	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	14-80	SICL, SIL, SIC	CL	A-6, A-7	0	0	100	100	90-100	75-95	30-50	10-30
66004:												
Dockery-----	0-10	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	10-60	SIL, SICL	CL	A-6	0	0	100	100	90-100	70-95	30-40	10-20
66006:												
Waldron-----	0-11	SICL	CH, CL	A-7-6, A-7	0	0	100	100	95-100	85-95	45-55	25-35
	11-60	SR-SIL,SICL,SIC	CH	A-7, A-7-6	0	0	100	100	95-100	90-95	45-75	25-50
66009:												
Haynie-----	0-16	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-40	5-15
	16-64	SR-FS,LFS,VFSL, L,SIL	CL, CL-ML	A-4, A-6	0	0	100	100	75-100	30-90	25-35	5-15
66010:												
Sarpy-----	0-1	FS	SC-SM, SM	A-2-4	0	0	100	100	65-80	20-35	0-15	NP
	1-60	SR-FS&LFS	SC-SM, SM	A-2-4	0	0	100	100	65-80	20-35	0-15	NP
66026:												
Blake-----	0-8	L	CL	A-4, A-6	0	0	100	100	85-95	60-70	20-35	5-15
	8-60	SR-VFSL,SIL, SICL	CL-ML, CL	A-6, A-7, A-4	0	0	100	100	85-100	50-90	25-45	5-20
66027:												
Haynie-----	0-6	VFSL	CL-ML, ML	A-4	0	0	100	100	85-95	50-65	10-30	2-10
	6-80	SIL, VFSL	CL, CL-ML	A-4	0	0	100	100	85-100	50-90	10-30	2-10
66028:												
Leta-----	0-9	SICL	CL	A-7	0	0	100	100	95-100	90-100	45-55	25-35
	9-14	SIC, SICL	CH	A-7	0	0	100	100	95-100	90-100	50-70	30-45
	14-22	SIC	CH	A-7	0	0	100	100	95-100	90-100	60-70	40-45
	22-80	SR-VFSL,L,SIL	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	50-100	20-45	5-25
70023:												
Eldon-----	0-9	SIL	CL, CL-ML	A-6, A-4	0	0-5	85-100	80-100	75-95	65-85	25-35	5-15
	9-17	GRV-SIL, GR- SICL, GR-SIL	GC	A-2-4, A-2-7, A-6, A-7	0-5	0-15	35-60	30-55	25-50	20-40	25-45	5-20
	17-60	GRV-C, GR-SIC, GRX-C, GRV-SIC	GC	A-7, A-2-7	0-5	0-10	25-65	20-60	20-60	15-55	45-65	25-40

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
70029: Moko-----	0-4	GR-CL	CL, GC, SC	A-6, A-7	0-3	0-15	55-80	50-75	45-75	35-60	35-45	15-20
	4-7	CNV-CL, CNV-L, FLV-SIL	CL, GC, SC	A-6, A-7, A-2-7	0-5	5-30	35-70	30-65	25-60	20-55	25-45	10-20
	7-60	UWB	---	---	---	---	---	---	---	---	---	---
Rock outcrop.												
70046: Sacville-----	0-7	SIL	CL	A-6	0	0	100	100	90-100	70-90	30-45	15-25
	7-13	SIL	CL	A-6	0	0	100	100	90-100	70-90	35-45	15-25
	13-27	SIC, SICL	CL, CH	A-7, A-7-6	0	0	90-100	85-100	80-100	75-95	40-60	20-35
	27-60	SIC, SICL	CH	A-7, A-7-6	0	0	90-100	85-100	80-100	75-95	50-70	30-45
73012: Gravois-----	0-6	SIL	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	80-100	70-90	20-40	5-15
	6-25	SICL, SIL	CL	A-6, A-7	0	0	90-100	85-100	80-100	70-85	30-45	10-25
	25-35	SICL, GR-SICL, GRV-SIL, SIL, GRX-SIL	GC, CL, SC	A-6, A-7, A-7-6	0	0-15	35-100	30-95	25-90	20-80	25-45	10-20
	35-50	GRV-SICL, SICL, GRV-SIL, GRV-L	SC, GC-GM, GC	A-7-6, A-7, A-6	0	0-15	35-85	30-80	25-80	20-75	25-45	10-25
	50-80	CBV-C, GRV-SIC, GR-SIC, GRV-C	CL, GC	A-7-6, A-2-7, A-7	0	0-60	35-80	30-75	25-70	20-65	45-90	25-60
73035: Gravois-----	0-6	SIL	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	80-100	70-90	20-40	5-15
	6-25	SICL, SIL	CL	A-6, A-7	0	0	90-100	85-100	80-100	70-85	30-45	10-25
	25-35	SICL, GR-SICL, GRV-SIL, GRX- SIL, SIL	GC, CL, SC	A-6, A-7, A-7-6	0	0-15	35-100	30-95	25-90	20-80	25-45	10-25
	35-50	GRV-SICL, SICL, GRV-SIL, GRV-L	SC, GC-GM, GC	A-7, A-6, A-7-6	0	0-15	35-85	30-80	25-80	20-75	25-45	10-25
	50-80	CBV-C, GRV-SIC, GR-SIC, GRV-C	CL, GC	A-2-7, A-7, A-7-6	0	0-60	35-80	30-75	25-70	20-65	45-90	25-60
73040: Maplewood-----	0-8	SIL	CL	A-6	0	0	95-100	90-100	85-100	70-90	25-40	10-20
	8-17	SIC, SICL	CH, CL	A-7, A-7-6	0	0	95-100	90-100	85-95	75-90	40-60	20-35
	17-32	SICL, SIL, GR- SICL, GRV-SICL	CL, GC, SC	A-6, A-7, A-7-6	0	0-15	55-100	50-100	45-95	35-85	35-50	15-25
	32-60	GR-SIC, CBV-C, GRV-C, C, GR- C, GRX-C	CH, CL, GC, SC	A-2, A-7, A-7-6	0-5	15-55	35-95	30-90	25-90	20-80	45-90	25-65

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
73041: Maplewood-----	0-6	SIL	CL	A-6	0	0	95-100	90-100	85-100	70-90	25-40	10-20
	6-17	SICL, SIC	CH, CL	A-7, A-7-6	0	0	95-100	90-100	85-95	75-90	40-60	20-35
	17-32	SICL, SIL, GR- SICL, GRV-SICL	CL, GC, SC	A-6, A-7, A-7-6	0	0-15	55-100	50-100	45-95	35-85	35-50	15-25
	32-60	GR-SIC, CBV-C, GRV-C, GRX-C, GR-C, C	CH, CL, GC, SC	A-2, A-7, A-7-6	0-5	15-55	35-95	30-90	25-90	20-80	45-90	25-65
73042: Niangua-----	0-3	GRV-SIL	GC, GC-GM	A-4, A-6, A-2-4	0-5	0-20	35-55	30-50	25-45	20-40	20-35	5-15
	3-14	GRV-SIL, GRX- SIL	GC, GC-GM	A-4, A-6, A-2-4	0-5	0-20	35-55	30-50	25-45	20-40	20-35	5-15
	14-52	GR-C, C	CH	A-7, A-7-6	0-5	0-15	65-100	60-100	55-90	50-85	65-90	40-65
	52-60	UWB	---	---	---	---	---	---	---	---	---	---
Bardley-----	0-4	GRV-SIL	GC, GC-GM	A-6	0-15	0-5	35-55	30-50	25-45	20-40	25-40	10-15
	4-8	GRX-SIL, GRV-L	GC	A-2-6	0-15	0-5	20-35	15-30	15-25	10-25	25-40	10-15
	8-27	C, GR-C	CH	A-7, A-7-6	0	0-10	75-100	70-100	65-95	60-85	65-95	40-70
	27-60	UWB	---	---	---	---	---	---	---	---	---	---
73048: Rueter-----	0-3	GR-SIL	GC-GM, GM, SC, GC	A-6, A-4	0-5	0-10	55-80	50-75	45-70	40-60	10-35	2-15
	3-14	GRV-SIL, GRX- SIL	GC-GM, GM	A-2-4	0-5	0-10	25-55	20-50	15-45	15-40	10-35	2-15
	14-45	GRV-L, CBX-L, GRV-SCL	GC-GM, GC, GM	A-6, A-2-6	0-5	10-40	30-55	25-50	25-50	10-40	15-45	3-20
	45-86	GRV-C, GRX- SICL, CBV-C, CBX-C, C	GC-GM, GC	A-2-7, A-7	0-5	0-40	25-85	20-80	15-80	15-70	45-85	25-60
73050: Rock outcrop.												
Bardley-----	0-4	GRV-SIL	GC, GC-GM	A-6	0-15	0-5	35-55	30-50	25-45	20-40	25-40	10-15
	4-8	GRX-SIL, GRV-L	GC	A-2-6	0-15	0-5	20-35	15-30	15-25	10-25	25-40	10-15
	8-27	C, GR-C	CH	A-7, A-7-6	0	0-10	75-100	70-100	65-95	60-85	65-95	40-70
	27-60	UWB	---	---	---	---	---	---	---	---	---	---

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches						
							4	10	40	200		
	In				Pct	Pct					Pct	
73088: Rueter-----	0-3	GRV-SIL	GC, GC-GM	A-2-4	0-5	0-10	30-55	25-50	25-50	20-45	10-35	2-15
	3-14	GRV-SIL, GRX-SIL	GC, GC-GM	A-2-6, A-4, A-6, A-2-4	0-5	0-10	20-55	15-50	15-45	10-40	10-35	2-15
	14-45	CBX-L, GRV-L, GRV-SCL	GC, GC-GM	A-2-4, A-1-a, A-2-6	0-5	10-50	30-60	25-55	25-55	10-45	15-40	5-20
	45-80	CBX-C, GRV-C	GC-GM	A-2-7, A-7	0-5	10-50	30-60	25-55	25-55	20-50	50-75	25-60
73089: Rueter-----	0-3	GRV-SIL	GC, GC-GM	A-2-4	0-5	0-10	30-55	25-50	25-50	20-45	10-35	2-15
	3-14	GRV-SIL, GRX-SIL	GC, GC-GM	A-2-6, A-4, A-6, A-2-4	0-5	0-10	20-55	15-50	15-45	10-40	10-35	2-15
	14-45	CBX-L, GRV-L, GRV-SCL	GC, GC-GM	A-2-4, A-1-a, A-2-6	0-5	10-50	30-60	25-55	25-55	10-45	15-40	5-20
	45-80	CBX-C, GRV-C	GC-GM	A-2-7, A-7	0-5	10-50	30-60	25-55	25-55	20-50	50-75	25-60
73095: Gravois-----	0-6	SIL	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	80-100	70-90	20-40	5-15
	6-25	SICL, SIL	CL	A-6, A-7	0	0-5	90-100	85-100	80-100	70-85	30-45	10-25
	25-35	SICL, GR-SICL, GRV-SIL, GRX-SIL, SIL	GC, CL, SC	A-6, A-7, A-7-6	0	0-15	35-100	30-95	25-90	20-80	25-45	10-25
	35-50	GRV-SICL, SICL, GRV-SIL, GRV-L	SC, GC-GM, GC	A-7, A-6, A-7-6	0	0-15	35-85	30-80	25-80	20-75	25-45	10-25
	50-80	CBV-C, GRV-SIC, GR-SIC, GRV-C	CL, GC	A-2-7, A-7, A-7-6	0	0-60	35-80	30-75	25-70	20-65	45-90	25-60
73101: Wrengart-----	0-8	SIL	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-40	5-15
	8-36	SICL, SIL	CL	A-6	0	0	100	95-100	85-100	65-90	30-45	10-20
	36-61	SICL, SIL, GR-SICL, GR-SIL, GRV-SIL	CL	A-6	0	0-5	50-100	45-100	45-100	35-90	25-40	10-20
	61-80	GR-SIC, SIC, GR-C, GRV-C	CH, CL	A-7, A-7-6	0	0-15	50-95	45-90	45-90	40-85	45-70	25-45
73112: Gunlock-----	0-5	SIL	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	75-90	25-35	5-15
	5-25	SICL, SIC, SIL	CH, CL	A-7-6, A-7	0	0	90-100	85-100	80-100	65-95	35-55	15-30
	25-43	SICL, GR-SICL, GRV-SIL, SIL	CL, GC, SC	A-6, A-7	0	0-10	45-95	40-90	35-90	30-85	30-45	10-20
	43-55	GRX-SICL, GRX-SIC, GRV-CL	GC	A-2-7	0	0-10	20-40	15-35	15-35	15-25	40-65	20-40
	55-80	GR-SIC, GR-C, SIC	CH, CL	A-7, A-7-6	0	0-10	55-95	50-90	50-85	45-80	45-85	25-60

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	sieve number--					
							4	10	40	200		
	In				Pct	Pct					Pct	
73250:												
Gatewood-----	0-3	GR-SIL	GC-GM, SC, GC	A-4, A-6	0	0-20	60-80	55-75	55-70	45-60	20-35	5-15
	3-9	GRV-SIL	GC, GC-GM	A-4, A-6, A-2-6	0-5	0-20	25-55	20-50	15-50	15-40	20-35	5-15
	9-24	GR-C, C	CH	A-7, A-7-6	0-5	0-10	75-100	55-95	55-95	50-85	50-85	25-60
	24-60	UWB	---	---	---	---	---	---	---	---	---	---
Moko-----	0-3	GR-L	GC, CL, SC	A-4, A-6	0-5	0-15	55-80	50-75	45-70	35-60	15-35	2-15
	3-8	CNV-L, GRV-L	GC, GM	A-4, A-6, A-2-4	0-5	0-15	35-55	30-50	25-45	20-40	15-35	2-15
	8-60	UWB	---	---	---	---	---	---	---	---	---	---
73251:												
Gatewood-----	0-3	GR-SIL	GC-GM, SC, GC	A-4, A-6	0	0-20	60-80	55-75	55-70	45-60	20-35	5-15
	3-9	GRV-SIL	GC, GC-GM	A-4, A-6, A-2-6	0-5	0-20	25-55	20-50	15-50	15-40	20-35	5-15
	9-24	GR-C, C	CH	A-7, A-7-6	0-5	0-10	75-100	70-95	65-95	60-85	50-85	25-60
	24-60	UWB	---	---	---	---	---	---	---	---	---	---
Moko-----	0-3	GR-L	GC, CL, SC	A-4, A-6	0-5	0-15	55-80	50-75	45-70	35-60	15-35	2-15
	3-8	CNV-L, GRV-L	GC, GM	A-2-4, A-4, A-6	0-5	0-15	35-55	30-50	25-45	20-40	15-35	2-15
	8-60	UWB	---	---	---	---	---	---	---	---	---	---
73253:												
Ocie-----	0-3	GR-SIL	GC-GM, GC	A-4	0	0-15	60-80	55-75	55-75	45-60	10-30	2-10
	3-13	GRX-SIL	GC, GC-GM	A-2-4	0-5	0-20	15-30	10-25	10-25	10-20	10-30	2-10
	13-20	GRX-L, GRV-SIL	GC, GC-GM	A-2-6	0-5	0-20	15-30	10-25	10-25	10-20	20-35	5-15
	20-48	C, GR-C	CH	A-7	0-5	0-15	75-100	70-100	65-95	60-85	55-85	30-60
	48-80	UWB	---	---	---	---	---	---	---	---	---	---
73254: Ocie-----	0-3	GR-SIL	GC-GM, GC	A-4	0	0-15	60-80	55-75	55-75	45-60	10-30	2-10
	3-13	GRX-SIL	GC, GC-GM	A-2-4	0-5	0-20	15-30	10-25	10-25	10-20	10-30	2-10
	13-20	GRX-L, GRV-SIL	GC, GC-GM	A-2-6	0-5	0-20	15-30	10-25	10-25	10-20	20-35	5-15
	20-48	C, GR-C	CH	A-7	0-5	0-15	75-100	70-100	65-95	60-85	55-85	30-60
	48-80	UWB	---	---	---	---	---	---	---	---	---	---
73255:												
Ocie-----	0-7	GRV-SIL	GC-GM, GC	A-2, A-4	0	0-15	35-55	30-50	30-50	25-40	20-30	5-10
	7-16	GRV-SIL	GC, GC-GM	A-2-4	0-5	0-20	35-55	30-50	30-50	25-40	20-30	5-10
	16-23	GRV-L, GRX-SIL	GC, GC-GM	A-2-6	0-5	0-20	30-55	25-50	25-45	20-35	25-35	10-15
	23-58	C, GR-C	CH	A-7	0-5	0-15	85-100	80-100	80-95	70-85	55-85	30-60
	58-80	UWB	---	---	---	---	---	---	---	---	---	---

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches						
							4	10	40	200		
	In				Pct	Pct					Pct	
73256: Arkana-----	0-8	GR-SIL	CL, GC, SC	A-4, A-6	0	0-15	55-80	50-75	50-70	40-60	20-35	5-15
	8-14	GRV-SIL	GC	A-6, A-4	0	0-25	30-55	25-50	25-50	20-40	20-35	5-15
	14-33	C, GR-C, SIC	CH	A-7	0	0-10	55-85	50-80	50-80	45-75	55-80	30-55
	33-60	UWB	---	---	---	---	---	---	---	---	---	---
73257: Caneyville-----	0-7	SICL	CL	A-6	0	0	90-100	85-100	85-95	80-90	35-45	15-20
	7-36	SIC, C, GR-SIC	CH	A-7	0	0-5	75-100	70-100	65-95	60-95	50-75	25-45
	36-80	UWB	---	---	---	---	---	---	---	---	---	---
73258: Cotton-----	0-9	SIL	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	9-14	SIL	CL	A-6	0	0	100	100	90-100	80-95	25-35	10-15
	14-27	SIC, SICL	CH, CL	A-7	0	0	100	100	90-100	80-90	45-60	20-35
	27-49	SIL, SICL	CL, CL-ML, GC-GM	A-4, A-6	0	0	85-100	80-100	75-100	65-95	25-40	5-20
	49-66	GRX-SIL, GRV- SIL	GC	A-2	0	0-30	20-45	15-40	15-40	10-30	20-40	5-20
	66-80	GRV-C	GC, CH	A-7	0	0-30	40-65	35-60	35-60	30-55	60-85	30-60
73259: Cotton-----	0-9	SIL	CL, CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	9-14	SIL	CL	A-6	0	0	100	100	90-100	80-95	25-35	10-15
	14-27	SIC, SICL	CH, CL	A-7	0	0	100	100	90-100	80-90	45-60	20-35
	27-49	SIL, SICL	CL, CL-ML, GC-GM	A-4, A-6	0	0	85-100	80-100	75-100	65-95	25-40	5-20
	49-66	GRX-SIL, GRV- SIL	GC	A-2	0	0-30	20-45	15-40	15-40	10-30	20-40	5-20
	66-80	GRV-C	GC, CH	A-7	0	0-30	40-65	35-60	35-60	30-55	60-85	30-60
73260: Maplewood-----	0-7	SIL	CL	A-6	0	0	100	100	90-100	70-90	20-35	5-15
	7-11	SIL	CL	A-6	0	0	100	100	90-100	70-90	25-35	5-15
	11-19	SIC	CH, CL	A-7, A-7-6	0	0	100	100	95-100	90-95	40-60	25-35
	19-29	SIL	CL	A-6	0	0-5	85-100	80-100	75-80	60-75	25-35	5-15
	29-35	GRX-SICL	GC	A-2	0	0-25	20-45	15-40	10-40	10-35	40-50	20-25
	35-52	C, GRV-C	GC, SC	A-7	0	0-25	45-100	40-100	40-95	35-85	60-90	30-65
	52-80	WB	---	---	---	---	---	---	---	---	---	---

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
73261:												
Wrengart-----	0-8	SIL	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-40	5-15
	8-36	SICL, SIL	CL	A-6	0	0	100	95-100	85-100	65-90	30-45	10-20
	36-61	SICL, SIL, GR- SICL, GR-SIL, GRV-SIL	CL	A-6	0	0-5	50-100	45-100	45-100	35-90	25-40	10-20
	61-77	GR-SIC, SIC, GR-C, GRV-C	CH, CL	A-7, A-7-6	0	0-15	50-95	45-90	45-90	40-85	45-70	25-45
	77-80	WB	---	---	---	---	---	---	---	---	---	---
73262:												
Wrengart-----	0-5	SIL	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-40	5-15
	5-30	SICL	CL	A-6	0	0	100	95-100	85-95	65-90	35-45	15-25
	30-62	SICL, SIL, GRV- SIL	CL	A-6	0	0-5	50-100	45-100	45-95	35-90	25-40	10-20
	62-77	GR-SIC, SIC, GR-C, GRV-C	CL, CH	A-7, A-7-6	0	0-15	50-95	45-90	45-90	40-85	45-70	25-45
	77-80	WB	---	---	---	---	---	---	---	---	---	---
73263:												
Wrengart-----	0-5	SIL	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	20-40	5-15
	5-30	SICL	CL	A-6	0	0	100	95-100	85-95	65-90	35-45	15-25
	30-62	SIL, SICL, GRV- SIL	CL	A-6	0	0-5	50-100	45-100	45-95	35-90	25-40	10-20
	62-77	GR-SIC, SIC, GR-C, GRV-C	CL, CH	A-7-6, A-7	0	0-15	50-95	45-90	45-90	40-85	45-70	25-45
	77-80	WB	---	---	---	---	---	---	---	---	---	---
74634:												
Hartville-----	0-7	SIL	CL, CL-ML	A-4, A-6	0	0	100	95-100	85-100	65-90	25-40	5-15
	7-12	SIL	CL-ML, CL	A-6, A-4	0	0	100	95-100	85-100	65-90	25-40	5-15
	12-48	SICL, SIC	CH, CL	A-7-6	0	0	100	95-100	90-100	80-95	45-55	20-30
	48-80	C, SICL	CL	A-7-6, A-6	0	0	95-100	90-100	85-100	75-95	40-60	20-30
74659:												
Deible-----	0-7	SIL	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	25-35	5-15
	7-13	SIL	CL, CL-ML	A-6, A-4	0	0	100	100	90-100	70-90	25-35	5-15
	13-80	SIC, SICL	CH, CL	A-7, A-7-6	0	0	100	100	90-100	75-90	45-70	25-45
74678:												
Raccoon-----	0-6	SIL	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	6-28	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	28-58	SIL, SICL	CL	A-6, A-7, A-7-6	0	0	100	100	90-100	70-90	30-45	10-20
	58-80	SICL, SIC	CH	A-7	0	0	80-100	75-100	75-95	70-95	50-60	25-35

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10						
					inches	inches	4	10	40	200		
	In				Pct	Pct					Pct	
75376: Cedargap-----	0-9	GR-SIL	CL-ML, CL	A-4, A-6	0	0-10	55-80	50-75	45-75	35-70	20-35	5-15
	9-18	GRV-L, GRV-SCL, GRX-COSL, GRV- SIL, GRX-SCL	GC, GC-GM	A-2-6, A-2-4	0	0-10	30-55	25-50	15-50	10-45	20-45	5-25
	18-49	GR-COSL, GRX- COSL, GRV- COSL, GRX-CL, GRV-CL, GRX- SCL, GRV-SCL, GRV-L, GRV- SICL	GC-GM, GC	A-2-6, A-2-4	0	0-10	25-65	20-60	15-50	10-45	25-45	5-20
	49-60	C, GRV-C, GRX- SCL, GRX-SC, GR-C	GC	A-2-7, A-7-6	0	0-15	30-85	25-80	20-75	10-70	50-85	25-60
75387: Hacreek-----	0-9	SIL	CL	A-6	0	0	100	100	90-100	70-95	30-40	10-20
	9-21	SICL, SIL	CL	A-7-6, A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-25
	21-28	SICL, SIL	CL	A-7-6, A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-25
	28-70	SICL	CL	A-7, A-6	0	0	100	100	95-100	85-95	35-45	15-25
	70-81	SICL	CL	A-6, A-7	0	0	100	100	95-100	85-95	35-45	15-25
75399: Jamesfin-----	0-10	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-40	5-20
	10-60	SIL, SICL	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	90-100	70-90	25-45	5-25
75415: Jemerson-----	0-9	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	20-35	5-15
	9-50	SIL, SICL	CL-ML, CL	A-6	0	0	100	100	90-100	70-95	20-45	5-20
	50-60	GR-L, SIL	CL, CL-ML	A-4, A-6	0	0	75-100	70-100	60-100	45-90	25-35	5-15
75456: Racket-----	0-5	SIL	CL, CL-ML	A-4	0	0	90-100	85-100	80-95	75-85	20-30	5-10
	5-30	SIL, SICL	CL, CL-ML	A-4, A-6	0	0	90-100	85-100	80-95	70-90	20-40	5-20
	30-68	GRV-SCL, GRV- CL, GR-L, GRX- SCL	GC	A-6	0	0-30	40-75	35-70	30-65	15-50	25-40	10-20
	68-80	GRV-C	GC	A-7	0	15-35	35-55	30-50	30-50	25-45	50-65	25-40
75457: Urban land.												

Table 18.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10	3-10	4	10	40	200		
					inches	inches						
	In				Pct	Pct					Pct	
75457:												
Jamesfin-----	0-10	SIL	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-90	25-40	5-20
	10-60	SIL, SICL	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	90-100	70-90	25-45	5-25
75458:												
Tanglenook-----	0-7	SICL	CL	A-6	0	0	100	100	95-100	85-95	40-50	15-25
	7-16	SIC	CH	A-7	0	0	100	100	95-100	90-95	50-60	25-35
	16-60	C, SIC	CH	A-7	0	0	100	100	90-100	75-95	50-75	25-45
99000:												
Pits, quarries.												
99001:												
Water.												
99012:												
Urban land.												

Table 19.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
15002: McGirk-----	0-8	5-20	55-80	15-27	1.30-1.45	4.00-14.00	0.22-0.24	0.1-2.9	1.0-2.0	.43	.43	3	6	48
	8-15	5-15	50-70	27-45	1.30-1.40	1.40-4.00	0.18-0.20	6.0-8.9	0.5-1.0	.43	.43			
	15-45	5-15	40-55	40-60	1.25-1.35	0.42-1.40	0.10-0.18	6.0-8.9	0.5-1.0	.32	.32			
	45-80	5-15	40-60	30-60	1.25-1.35	0.42-1.40	0.10-0.18	6.0-8.9	0.1-0.5	.32	.32			
60001: Menfro-----	0-6	5-15	60-85	10-27	1.25-1.40	4.00-14.00	0.22-0.24	0.1-2.9	0.5-2.0	.37	.37	5	6	48
	6-11	5-15	60-80	15-27	1.30-1.40	4.00-14.00	0.20-0.22	0.1-2.9	0.5-1.0	.37	.37			
	11-34	2-10	55-75	15-35	1.30-1.45	4.00-14.00	0.18-0.20	3.0-5.9	0.1-0.5	.37	.37			
	34-60	2-10	55-75	15-35	1.30-1.45	4.00-14.00	0.18-0.22	3.0-5.9	0.1-0.5	.37	.37			
60003: Menfro-----	0-5	5-15	60-80	12-27	1.25-1.40	4.00-14.00	0.22-0.24	0.1-2.9	0.5-2.0	.37	.37	5	6	48
	5-28	2-10	55-75	15-35	1.30-1.45	4.00-14.00	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37			
	28-63	2-10	55-75	15-35	1.30-1.45	4.00-14.00	0.18-0.22	3.0-5.9	0.1-0.5	.37	.37			
60004: Menfro-----	0-5	5-15	60-80	12-27	1.25-1.40	4.00-14.00	0.22-0.24	0.1-2.9	0.5-2.0	.37	.37	5	6	48
	5-28	2-10	55-75	15-35	1.30-1.45	4.00-14.00	0.18-0.20	3.0-5.9	0.5-1.0	.37	.37			
	28-63	2-10	55-75	15-35	1.30-1.45	4.00-14.00	0.18-0.22	3.0-5.9	0.1-0.5	.37	.37			
60005: Menfro-----	0-4	5-15	60-80	12-27	1.25-1.40	4.00-14.00	0.22-0.24	0.1-2.9	0.5-2.0	.37	.37	5	6	48
	4-16	5-15	60-80	12-27	1.25-1.40	4.00-14.00	0.20-0.22	0.1-2.9	0.5-1.0	.37	.37			
	16-29	2-10	55-75	15-35	1.30-1.45	4.00-14.00	0.18-0.22	3.0-5.9	0.1-0.5	.37	.37			
	29-62	2-10	55-75	15-35	1.30-1.45	4.00-14.00	0.18-0.22	3.0-5.9	0.1-0.5	.37	.37			
60051: Urban land.														
Harvester-----	0-5	1-10	55-75	18-27	1.40-1.60	4.00-14.00	0.10-0.20	0.1-2.9	0.2-1.0	.32	.32	5	6	48
	5-80	1-10	50-75	18-35	1.35-1.60	1.00-4.00	0.10-0.20	0.1-2.9	0.2-1.0	.32	.32			
60052: Urban land.														
Udorthents-----	0-10	1-10	15-35	50-80	1.45-1.65	0.42-1.40	0.02-0.05	6.0-8.9	0.2-1.0	.20	.28	5	6	48
	10-71	1-10	15-45	50-80	1.45-1.65	0.42-1.40	0.02-0.05	6.0-8.9	0.2-1.0	.20	.28			
	71-80	---	---	---	---	0.01-0.05	---	---	---	---	---			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
64002: Freeburg-----	0-7	5-10	60-80	12-27	1.20-1.45	4.00-14.00	0.22-0.24	0.1-2.9	1.0-2.0	.37	.37	5	6	48
	7-60	2-10	55-75	12-35	1.40-1.50	1.40-4.00	0.18-0.20	3.0-5.9	0.2-0.8	.37	.37			
64007: Freeburg-----	0-8	5-15	65-80	12-27	1.20-1.45	4.00-14.00	0.22-0.24	0.1-2.9	0.5-2.0	.37	.37	5	6	48
	8-18	5-15	65-80	10-20	1.40-1.50	4.00-14.00	0.18-0.20	0.1-2.9	0.2-1.0	.37	.37			
	18-37	5-15	55-65	20-35	1.40-1.50	1.40-4.00	0.15-0.19	3.0-5.9	0.1-0.5	.37	.37			
	37-65	10-20	50-70	20-35	1.35-1.50	1.40-4.00	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37			
64010: Urban land.														
Freeburg-----	0-8	5-15	65-80	12-27	1.20-1.45	4.00-14.00	0.22-0.24	0.1-2.9	0.5-2.0	.37	.37	5	6	48
	8-18	5-15	65-80	10-20	1.40-1.50	4.00-14.00	0.18-0.20	0.1-2.9	0.2-1.0	.37	.37			
	18-37	5-15	55-65	20-35	1.40-1.50	1.40-4.00	0.15-0.19	3.0-5.9	0.1-0.5	.37	.37			
	37-65	10-20	50-70	20-35	1.35-1.50	1.40-4.00	0.16-0.20	3.0-5.9	0.1-0.5	.37	.37			
64011: Kliever-----	0-8	35-50	30-50	8-15	1.30-1.50	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	8-17	30-50	35-55	8-18	1.30-1.50	14.00-42.00	0.17-0.19	0.0-2.9	0.5-1.0	.24	.24			
	17-52	30-50	25-50	18-30	1.25-1.50	4.00-14.00	0.17-0.19	0.0-2.9	0.1-0.5	.32	.32			
	52-64	15-35	40-65	18-27	1.30-1.50	4.00-14.00	0.20-0.22	0.0-2.9	0.1-0.5	.43	.43			
	64-80	2-30	45-70	22-35	1.30-1.50	4.00-14.00	0.18-0.20	3.0-5.9	0.1-0.5	.43	.43			
64012: Kliever-----	0-8	35-50	30-50	8-15	1.30-1.50	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	8-17	30-50	35-55	8-18	1.30-1.50	14.00-42.00	0.17-0.19	0.0-2.9	0.5-1.0	.24	.24			
	17-52	30-50	25-50	18-30	1.25-1.50	4.00-14.00	0.17-0.19	0.0-2.9	0.1-0.5	.32	.32			
	52-64	15-35	40-65	18-27	1.30-1.50	4.00-14.00	0.20-0.22	0.0-2.9	0.1-0.5	.43	.43			
	64-80	2-30	45-70	22-35	1.30-1.50	4.00-14.00	0.18-0.20	3.0-5.9	0.1-0.5	.43	.43			
64013: Kliever-----	0-8	35-50	30-50	8-15	1.30-1.50	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	8-52	30-50	25-50	18-30	1.25-1.50	4.00-14.00	0.17-0.19	0.0-2.9	0.1-0.5	.32	.32			
	52-64	15-35	40-65	18-27	1.30-1.50	4.00-14.00	0.20-0.22	0.0-2.9	0.1-0.5	.43	.43			
	64-80	2-30	45-70	22-35	1.30-1.50	4.00-14.00	0.18-0.20	3.0-5.9	0.1-0.5	.43	.43			
64014: Kliever-----	0-8	35-50	30-50	8-15	1.30-1.50	14.00-42.00	0.20-0.22	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	8-52	30-50	25-50	18-30	1.25-1.50	4.00-14.00	0.17-0.19	0.0-2.9	0.1-0.5	.32	.32			
	52-64	15-35	40-65	18-27	1.30-1.50	4.00-14.00	0.20-0.22	0.0-2.9	0.1-0.5	.43	.43			
	64-80	2-30	45-70	22-35	1.30-1.50	4.00-14.00	0.18-0.20	3.0-5.9	0.1-0.5	.43	.43			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
66000:														
Moniteau-----	0-7	2-10	65-80	15-27	1.20-1.40	4.00-14.00	0.21-0.23	0.1-2.9	1.0-2.0	.37	.37	5	6	48
	7-14	2-10	65-80	12-25	1.20-1.40	4.00-14.00	0.18-0.22	0.1-2.9	0.5-1.0	.37	.37			
	14-80	2-10	55-75	22-45	1.30-1.50	1.40-4.00	0.17-0.20	6.0-8.9	0.1-0.8	.43	.43			
66004:														
Dockery-----	0-10	2-10	60-80	15-27	1.35-1.45	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.37	.37	5	6	48
	10-60	2-10	60-80	18-30	1.35-1.45	4.00-14.00	0.18-0.22	0.1-2.9	0.5-2.0	.43	.43			
66006:														
Waldron-----	0-11	5-20	45-65	27-40	1.35-1.50	1.40-4.00	0.18-0.23	3.0-5.9	2.0-4.0	.32	.32	5	7	38
	11-60	0-1	45-65	20-60	1.35-1.45	0.42-1.40	0.11-0.13	6.0-8.9	0.5-2.0	.32	.32			
66009:														
Haynie-----	0-16	15-40	60-80	12-27	1.20-1.35	4.00-14.00	0.18-0.23	0.1-2.9	1.0-3.0	.32	.32	5	4L	86
	16-64	40-90	10-55	5-20	1.20-1.35	4.00-14.00	0.14-0.22	0.1-2.9	0.1-1.0	.43	.43			
66010:														
Sarpy-----	0-1	90-99	2-10	0-10	1.20-1.40	42.00-141.00	0.05-0.09	0.1-2.9	0.5-1.0	.15	.15	5	1	250
	1-60	80-99	2-10	0-15	1.20-1.50	42.00-141.00	0.05-0.09	0.1-2.9	0.1-0.5	.15	.15			
66026:														
Blake-----	0-8	30-50	35-50	10-27	1.25-1.30	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.32	.32	5	4L	86
	8-60	5-50	45-80	12-35	1.30-1.35	4.00-14.00	0.18-0.22	0.1-2.9	0.1-0.5	.43	.43			
66027:														
Haynie-----	0-6	50-70	30-50	5-20	1.20-1.35	4.00-14.00	0.20-0.22	0.1-2.9	0.5-3.0	.32	.32	5	3	86
	6-80	20-50	45-80	5-18	1.20-1.35	4.00-14.00	0.18-0.23	0.1-2.9	0.2-1.0	.43	.43			
66028:														
Leta-----	0-9	2-10	45-65	27-40	1.30-1.45	1.40-4.00	0.21-0.23	3.0-5.9	1.5-4.0	.32	.32	5	4L	86
	9-14	0-5	45-65	35-55	1.30-1.50	0.42-1.40	0.11-0.19	6.0-8.9	1.0-2.0	.28	.28			
	14-22	0-5	40-55	45-55	1.30-1.50	0.42-1.40	0.11-0.13	6.0-8.9	1.0-2.0	.28	.28			
	22-80	13-50	45-75	7-27	1.20-1.40	4.00-14.00	0.17-0.22	0.1-2.9	0.2-0.5	.28	.28			
70023:														
Eldon-----	0-9	10-25	55-75	15-27	1.40-1.55	4.00-14.00	0.13-0.18	0.1-2.9	1.0-3.0	.24	.28	3	8	0
	9-17	15-30	50-75	16-35	1.40-1.55	4.00-14.00	0.13-0.18	0.1-2.9	1.0-2.0	.24	.43			
	17-60	5-25	30-50	40-60	1.35-1.45	1.40-4.00	0.07-0.10	6.0-8.9	0.1-0.5	.24	.32			
70029:														
Moko-----	0-4	25-45	20-45	27-40	1.25-1.50	4.00-14.00	0.11-0.12	0.1-2.9	2.0-6.0	.24	.37	1	8	0
	4-7	25-45	25-55	18-35	1.25-1.60	4.00-14.00	0.03-0.14	0.1-2.9	2.0-6.0	.20	.37			
	7-60	---	---	---	---	0.00-1.40	---	---	---	---	---			
Rock outcrop.														

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
70046: Sacville-----	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
	0-7	2-10	60-85	17-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	2.0-6.0	.32	.32	4	6	48
	7-13	2-10	60-80	18-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	2.0-6.0	.32	.32			
	13-27	2-10	45-70	27-45	1.40-1.60	1.40-4.00	0.16-0.20	6.0-8.9	0.5-2.0	.37	.37			
	27-60	2-10	50-75	36-55	1.40-1.60	0.42-1.40	0.14-0.17	6.0-8.9	0.1-0.5	.37	.37			
73012: Gravois-----	0-6	5-15	65-85	12-27	1.20-1.50	4.00-14.00	0.20-0.22	0.1-2.9	1.0-3.0	.37	.37	4	5	56
	6-25	5-15	50-75	20-35	1.30-1.50	1.40-4.00	0.12-0.18	3.0-5.9	0.3-1.0	.43	.43			
	25-35	5-15	45-70	15-35	1.50-1.70	0.42-1.40	0.08-0.12	0.1-2.9	0.1-0.5	.32	.43			
	35-50	5-30	45-70	15-35	1.45-1.65	1.40-4.00	0.10-0.13	3.0-5.9	0.1-0.5	.32	.43			
	50-80	5-25	10-42	40-80	1.30-1.50	1.40-4.00	0.04-0.10	6.0-8.9	0.1-0.5	.28	.32			
73035: Gravois-----	0-6	2-10	65-80	12-27	1.20-1.50	4.00-14.00	0.20-0.22	0.1-2.9	1.0-3.0	.37	.37	4	5	56
	6-25	2-10	55-75	20-35	1.30-1.50	1.40-4.00	0.12-0.18	3.0-5.9	0.3-1.0	.43	.43			
	25-35	5-15	45-70	15-35	1.50-1.70	0.42-1.40	0.08-0.12	0.1-2.9	0.1-0.5	.32	.43			
	35-50	5-30	45-70	15-35	1.45-1.65	1.40-4.00	0.10-0.13	3.0-5.9	0.1-0.5	.32	.43			
	50-80	5-20	15-45	40-80	1.30-1.50	1.40-4.00	0.04-0.10	6.0-8.9	0.1-0.5	.28	.32			
73040: Maplewood-----	0-8	3-10	55-80	18-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	2.0-4.0	.37	.37	3	6	48
	8-17	3-10	40-65	35-55	1.30-1.60	1.40-4.00	0.12-0.19	6.0-8.9	1.0-2.0	.37	.43			
	17-32	3-10	50-75	25-35	1.50-1.70	0.42-1.40	0.13-0.20	3.0-5.9	0.5-1.0	.28	.43			
	32-60	3-10	25-45	40-85	1.20-1.50	1.40-4.00	0.08-0.10	6.0-8.9	0.1-0.5	.24	.32			
73041: Maplewood-----	0-6	3-10	55-80	18-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	2.0-4.0	.37	.37	3	6	48
	6-17	3-10	40-65	35-55	1.30-1.60	1.40-4.00	0.12-0.19	6.0-8.9	1.0-2.0	.37	.43			
	17-32	3-10	50-75	25-35	1.50-1.70	0.40-1.40	0.13-0.20	3.0-5.9	0.5-1.0	.28	.43			
	32-60	3-10	25-45	40-85	1.20-1.50	1.40-4.00	0.08-0.10	6.0-8.9	0.1-0.5	.24	.32			
73042: Niangua-----	0-3	10-25	55-80	10-27	1.10-1.40	4.00-14.00	0.10-0.17	0.1-2.9	0.5-3.0	.24	.37	3	8	0
	3-14	10-25	55-80	10-27	1.10-1.40	4.00-14.00	0.09-0.14	0.1-2.9	0.5-1.0	.24	.43			
	14-52	2-10	10-30	60-85	1.10-1.30	1.40-4.00	0.07-0.10	3.0-5.9	0.5-1.0	.32	.32			
	52-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
Bardley-----	0-4	5-15	52-75	18-27	1.40-1.55	4.00-14.00	0.12-0.17	0.1-2.9	2.0-4.0	.28	.37	2	8	0
	4-8	10-30	45-75	18-27	1.40-1.55	4.00-14.00	0.06-0.08	0.1-2.9	0.5-2.0	.28	.37			
	8-27	2-15	5-25	60-90	1.20-1.40	4.00-14.00	0.08-0.12	3.0-5.9	0.5-1.0	.24	.28			
	27-60	---	---	---	---	0.07-0.42	---	---	---	---	---			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
73048:														
Rueter-----	0-3	20-45	55-75	4-27	1.20-1.40	14.00-42.00	0.10-0.13	0.1-2.9	0.5-2.0	.28	.37	3	8	0
	3-14	20-45	55-75	4-27	1.20-1.40	14.00-42.00	0.07-0.12	0.1-2.9	0.5-1.0	.37	.43			
	14-45	35-60	25-40	7-35	1.30-1.50	14.00-42.00	0.05-0.10	0.1-2.9	0.1-0.5	.32	.43			
	45-86	15-35	15-45	33-80	1.20-1.40	4.00-14.00	0.02-0.05	6.0-8.9	0.1-0.5	.20	.32			
73050:														
Rock outcrop.														
Bardley-----	0-4	5-15	52-75	18-27	1.40-1.55	4.00-14.00	0.12-0.17	0.1-2.9	2.0-4.0	.28	.37	2	8	0
	4-8	10-30	45-75	18-27	1.40-1.55	4.00-14.00	0.06-0.08	0.1-2.9	0.5-2.0	.28	.37			
	8-27	2-15	5-25	60-90	1.20-1.40	4.00-14.00	0.08-0.12	3.0-5.9	0.5-1.0	.24	.28			
	27-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
73088:														
Rueter-----	0-3	20-45	55-75	4-27	1.20-1.40	14.00-42.00	0.07-0.12	0.1-2.9	0.5-2.0	.28	.37	3	8	0
	3-14	20-45	55-75	4-27	1.20-1.40	14.00-42.00	0.07-0.12	0.1-2.9	0.5-1.0	.37	.43			
	14-45	35-60	25-40	7-35	1.30-1.50	14.00-42.00	0.05-0.10	0.1-2.9	0.1-0.5	.32	.43			
	45-80	15-35	15-45	40-80	1.20-1.40	4.00-14.00	0.02-0.05	6.0-8.9	0.1-0.5	.20	.32			
73089:														
Rueter-----	0-3	20-45	55-75	4-27	1.20-1.40	14.00-42.00	0.07-0.12	0.1-2.9	0.5-2.0	.28	.37	3	8	0
	3-14	20-45	55-75	4-27	1.20-1.40	14.00-42.00	0.07-0.12	0.1-2.9	0.5-1.0	.37	.43			
	14-45	35-60	25-40	7-35	1.30-1.50	14.00-42.00	0.05-0.10	0.1-2.9	0.1-0.5	.32	.43			
	45-80	15-35	15-45	40-80	1.20-1.40	4.00-14.00	0.02-0.05	6.0-8.9	0.1-0.5	.20	.32			
73095:														
Gravois-----	0-6	2-10	65-80	12-27	1.20-1.50	4.00-14.00	0.20-0.22	0.1-2.9	1.0-2.5	.37	.37	4	5	56
	6-25	2-10	55-75	20-35	1.30-1.50	1.40-4.00	0.12-0.18	3.0-5.9	0.3-1.0	.43	.43			
	25-35	5-15	45-70	15-35	1.50-1.70	0.42-1.40	0.08-0.12	0.1-2.9	0.1-0.5	.32	.43			
	35-50	5-30	45-70	15-35	1.45-1.65	1.40-4.00	0.10-0.13	3.0-5.9	0.1-0.5	.32	.43			
	50-80	5-20	15-45	40-80	1.30-1.50	1.40-4.00	0.04-0.10	6.0-8.9	0.1-0.5	.28	.32			
73101:														
Wrengart-----	0-8	2-10	60-80	12-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.37	.37	4	5	56
	8-36	2-10	55-70	20-35	1.30-1.50	4.00-14.00	0.18-0.19	3.0-5.9	0.1-0.5	.43	.43			
	36-61	5-15	55-75	18-32	1.50-1.70	1.40-4.00	0.09-0.15	0.1-2.9	0.1-0.5	.43	.43			
	61-80	5-15	35-50	40-80	1.30-1.50	1.40-4.00	0.08-0.12	6.0-8.9	0.1-0.5	.17	.28			
73112:														
Gunlock-----	0-5	3-15	55-80	15-27	1.20-1.50	4.00-14.00	0.20-0.22	0.1-2.9	1.0-2.0	.37	.37	4	5	56
	5-25	3-10	45-65	22-45	1.30-1.50	1.40-4.00	0.12-0.18	3.0-5.9	0.5-1.0	.37	.43			
	25-43	5-20	50-65	20-35	1.50-1.70	0.42-1.40	0.08-0.14	0.1-2.9	0.1-0.5	.37	.43			
	43-55	5-25	40-60	35-60	1.30-1.50	1.40-4.00	0.06-0.13	6.0-8.9	0.1-0.5	.37	.43			
	55-80	5-25	15-41	40-80	1.30-1.50	1.40-4.00	0.06-0.18	6.0-8.9	0.1-0.5	.37	.37			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
73250:	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
Gatewood-----	0-3	20-40	50-70	12-27	1.10-1.40	4.00-14.00	0.14-0.18	0.1-2.9	2.0-6.0	.32	.37	2	8	0
	3-9	20-40	50-70	12-27	1.10-1.30	4.00-14.00	0.08-0.12	0.1-2.9	1.0-3.0	.28	.43			
	9-24	5-20	15-35	40-80	1.35-1.60	0.42-1.40	0.06-0.11	6.0-8.9	1.0-3.0	.20	.28			
	24-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
Moko-----	0-3	25-45	35-50	18-27	1.25-1.50	4.00-14.00	0.07-0.13	0.1-2.9	2.0-6.0	.24	.43	1	8	0
	3-8	25-45	35-50	18-27	1.25-1.60	4.00-14.00	0.03-0.14	0.1-2.9	2.0-6.0	.28	.43			
	8-60	---	---	---	---	0.00-1.40	---	---	---	---	---			
73251:														
Gatewood-----	0-3	20-40	50-70	12-27	1.10-1.40	4.00-14.00	0.14-0.18	0.1-2.9	2.0-6.0	.32	.37	2	8	0
	3-9	20-40	50-70	12-27	1.10-1.30	4.00-14.00	0.08-0.12	0.1-2.9	1.0-3.0	.28	.43			
	9-24	5-20	15-35	40-80	1.35-1.60	0.42-1.40	0.06-0.11	6.0-8.9	1.0-3.0	.20	.28			
	24-60	---	---	---	---	0.07-0.42	---	---	---	---	---			
Moko-----	0-3	25-45	35-50	18-27	1.25-1.50	4.00-14.00	0.07-0.13	0.1-2.9	2.0-6.0	.24	.43	1	8	0
	3-8	25-45	35-50	18-27	1.25-1.60	4.00-14.00	0.03-0.14	0.1-2.9	2.0-6.0	.28	.43			
	8-60	---	---	---	---	0.00-1.40	---	---	---	---	---			
73253:														
Ocie-----	0-3	20-40	55-75	5-20	1.10-1.40	4.00-14.00	0.14-0.18	0.0-2.9	2.0-6.0	.24	.37	3	8	0
	3-13	20-40	55-75	5-20	1.10-1.35	4.00-14.00	0.08-0.13	0.0-2.9	0.5-2.0	.10	.37			
	13-20	30-50	35-55	9-27	1.10-1.35	4.00-14.00	0.07-0.12	0.0-2.9	0.2-0.8	.10	.37			
	20-48	10-35	10-30	50-80	1.10-1.30	0.42-1.40	0.07-0.10	6.0-8.9	0.2-0.8	.32	.32			
	48-80	---	---	---	---	0.07-0.42	---	---	---	---	---			
73254:														
Ocie-----	0-3	20-40	55-75	5-20	1.10-1.40	4.00-14.00	0.14-0.18	0.0-2.9	2.0-6.0	.24	.37	3	8	0
	3-13	20-40	55-75	5-20	1.10-1.35	4.00-14.00	0.08-0.13	0.0-2.9	0.5-2.0	.10	.37			
	13-20	30-50	35-55	9-27	1.10-1.35	4.00-14.00	0.07-0.12	0.0-2.9	0.2-0.8	.10	.37			
	20-48	10-35	10-30	50-80	1.10-1.30	0.42-1.40	0.07-0.10	6.0-8.9	0.2-0.8	.32	.32			
	48-80	---	---	---	---	0.07-0.42	---	---	---	---	---			
73255:														
Ocie-----	0-7	20-40	55-75	10-20	1.10-1.40	4.00-14.00	0.08-0.14	0.0-2.9	2.0-6.0	.15	.37	3	8	0
	7-16	20-40	55-75	10-20	1.10-1.35	4.00-14.00	0.08-0.13	0.0-2.9	0.5-2.0	.15	.37			
	16-23	25-50	35-55	15-27	1.10-1.35	4.00-14.00	0.07-0.12	0.0-2.9	0.2-0.8	.15	.37			
	23-58	10-35	10-30	50-80	1.10-1.30	0.42-1.40	0.07-0.10	6.0-8.9	0.2-0.8	.32	.32			
	58-80	---	---	---	---	0.07-0.42	---	---	---	---	---			
73256:														
Arkana-----	0-8	20-45	50-75	8-27	1.25-1.50	4.00-14.00	0.14-0.18	0.0-2.9	2.0-4.0	.28	.37	2	8	0
	8-14	20-45	50-75	8-27	1.25-1.50	4.00-14.00	0.10-0.13	0.0-2.9	1.0-2.0	.32	.43			
	14-33	2-20	10-45	50-85	1.20-1.45	0.42-1.40	0.07-0.10	6.0-8.9	0.2-1.0	.24	.28			
	33-60	---	---	---	---	0.07-0.42	---	---	---	---	---			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
73257: Caneyville-----	0-7	2-10	50-70	27-35	1.10-1.30	4.00-14.00	0.21-0.23	0.1-2.9	1.5-2.5	.37	.37	2	5	56
	7-36	2-10	30-55	40-70	1.25-1.55	1.40-4.00	0.09-0.13	6.0-8.9	0.2-1.0	.28	.28			
	36-80	---	---	---	---	0.07-0.42	---	---	---	---	---			
73258: Cotton-----	0-9	5-15	65-85	10-20	1.35-1.55	4.00-14.00	0.22-0.24	0.1-2.9	0.8-2.0	.37	.37	4	5	56
	9-14	2-10	55-80	15-27	1.35-1.55	4.00-14.00	0.20-0.22	0.1-2.9	0.3-1.0	.43	.43			
	14-27	2-10	45-65	35-55	1.30-1.55	1.40-4.00	0.10-0.18	6.0-8.9	0.2-1.0	.28	.28			
	27-49	2-10	55-80	12-30	1.40-1.70	0.42-1.40	0.10-0.12	0.0-2.9	0.1-0.5	.43	.43			
	49-66	15-35	50-70	10-27	1.40-1.70	0.42-1.40	0.08-0.11	0.1-2.9	0.1-0.5	.32	.43			
	66-80	5-20	10-30	50-80	1.30-1.55	1.40-4.00	0.03-0.05	6.0-8.9	0.1-0.5	.20	.28			
73259: Cotton-----	0-9	5-15	65-85	10-20	1.35-1.55	4.00-14.00	0.22-0.24	0.1-2.9	0.8-2.0	.37	.37	4	5	56
	9-14	2-10	55-80	15-27	1.35-1.55	4.00-14.00	0.20-0.22	0.1-2.9	0.3-1.0	.43	.43			
	14-27	2-10	45-65	35-55	1.30-1.55	1.40-4.00	0.10-0.18	6.0-8.9	0.2-1.0	.28	.28			
	27-49	2-10	55-80	12-30	1.40-1.70	0.42-1.40	0.10-0.12	0.0-2.9	0.1-0.5	.43	.43			
	49-66	15-35	50-70	10-27	1.40-1.70	0.42-1.40	0.08-0.11	0.1-2.9	0.1-0.5	.32	.43			
	66-80	5-20	10-30	50-80	1.30-1.55	1.40-4.00	0.03-0.05	6.0-8.9	0.1-0.5	.20	.28			
73260: Maplewood-----	0-7	2-10	60-80	10-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	2.0-4.0	.37	.37	3	6	48
	7-11	2-10	60-80	15-27	1.30-1.40	4.00-14.00	0.20-0.22	0.1-2.9	0.8-2.0	.37	.37			
	11-19	2-10	40-60	40-55	1.30-1.60	1.40-4.00	0.11-0.13	6.0-8.9	1.0-2.0	.32	.32			
	19-29	2-10	40-75	15-27	1.50-1.70	0.42-1.40	0.09-0.11	3.0-5.9	0.1-0.5	.43	.43			
	29-35	10-30	40-75	30-40	1.50-1.60	0.42-1.40	0.04-0.06	3.0-5.9	0.1-0.5	.32	.43			
	35-52	2-10	15-35	50-85	1.20-1.50	1.40-4.00	0.06-0.10	6.0-8.9	0.1-0.5	.28	.28			
	52-80	---	---	---	---	0.06-0.36	---	---	---	---	---			
73261: Wrengart-----	0-8	2-10	60-80	12-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.37	.37	4	5	56
	8-36	2-10	55-70	20-35	1.30-1.50	4.00-14.00	0.18-0.19	3.0-5.9	0.1-0.5	.43	.43			
	36-61	5-15	55-75	18-32	1.50-1.70	1.40-4.00	0.09-0.15	0.1-2.9	0.1-0.5	.43	.43			
	61-77	5-15	35-50	40-80	1.30-1.50	1.40-4.00	0.08-0.12	6.0-8.9	0.1-0.5	.17	.28			
	77-80	---	---	---	---	0.00-1.40	---	---	---	---	---			
73262: Wrengart-----	0-5	2-10	60-80	12-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.37	.37	4	5	56
	5-30	2-10	55-70	27-35	1.30-1.50	4.00-14.00	0.18-0.19	3.0-5.9	0.1-0.5	.43	.43			
	30-62	5-15	55-75	18-32	1.50-1.70	1.40-4.00	0.09-0.15	0.1-2.9	0.1-0.5	.43	.43			
	62-77	5-15	35-50	40-80	1.30-1.50	1.40-4.00	0.08-0.12	6.0-8.9	0.1-0.5	.17	.28			
	77-80	---	---	---	---	0.00-1.40	---	---	---	---	---			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
73263: Wrengart-----	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
	0-5	2-10	60-80	12-27	1.30-1.50	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.37	.37	4	5	56
	5-30	2-10	55-70	27-35	1.30-1.50	4.00-14.00	0.18-0.19	3.0-5.9	0.1-0.5	.43	.43			
	30-62	5-15	55-75	18-32	1.50-1.70	1.40-4.00	0.09-0.15	0.1-2.9	0.1-0.5	.43	.43			
	62-77	5-15	35-50	40-80	1.30-1.50	1.40-4.00	0.08-0.12	6.0-8.9	0.1-0.5	.17	.28			
	77-80	---	---	---	---	0.00-1.40	---	---	---	---	---			
74634: Hartville-----	0-7	3-10	65-85	12-27	1.10-1.30	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.43	.43	5	6	48
	7-12	3-10	65-85	12-27	1.20-1.40	4.00-14.00	0.20-0.22	0.1-2.9	0.5-1.5	.43	.43			
	12-48	3-10	50-70	35-45	1.20-1.50	0.42-1.40	0.15-0.20	6.0-8.9	0.2-0.8	.32	.32			
	48-80	5-15	35-70	30-50	1.20-1.50	0.42-1.40	0.18-0.20	6.0-8.9	0.2-0.8	.32	.32			
74659: Deible-----	0-7	10-20	65-80	12-27	1.30-1.45	4.00-14.00	0.22-0.24	0.1-2.9	1.0-3.0	.43	.43	3	5	56
	7-13	10-25	55-75	12-27	1.30-1.45	4.00-14.00	0.20-0.22	0.1-2.9	0.5-2.0	.43	.43			
	13-80	5-15	42-60	35-60	1.35-1.50	0.06-0.42	0.10-0.18	6.0-8.9	0.1-1.0	.32	.32			
74678: Racoon-----	0-6	5-10	65-80	12-27	1.30-1.50	1.40-4.00	0.22-0.24	0.1-2.9	1.0-2.5	.37	.37	5	6	48
	6-28	5-10	65-80	12-27	1.35-1.50	1.40-4.00	0.20-0.22	0.1-2.9	0.2-1.0	.37	.37			
	28-58	5-10	55-75	20-35	1.35-1.60	0.42-1.40	0.18-0.20	3.0-5.9	0.2-1.0	.37	.37			
	58-80	5-10	45-55	35-50	1.35-1.60	0.42-1.40	0.08-0.10	6.0-8.9	0.2-0.5	.32	.32			
75376: Cedargap-----	0-9	15-35	55-75	12-27	1.20-1.45	4.00-14.00	0.16-0.18	0.1-2.9	1.0-4.0	.24	.32	5	8	0
	9-18	40-65	20-55	12-35	1.30-1.50	4.00-14.00	0.08-0.10	0.1-2.9	0.5-2.0	.32	.43			
	18-49	18-55	20-55	15-35	1.30-1.50	4.00-14.00	0.08-0.10	0.1-2.9	0.5-1.0	.32	.43			
	49-60	15-50	15-45	30-80	1.20-1.40	1.40-4.00	0.04-0.10	6.0-8.9	0.5-1.0	.20	.32			
75387: Hacreek-----	0-9	1-5	55-80	20-27	1.20-1.35	4.00-14.00	0.22-0.24	0.1-2.9	2.0-4.0	.32	.32	5	6	48
	9-21	1-5	50-70	25-36	1.30-1.50	1.40-4.00	0.18-0.20	3.0-5.9	1.0-2.0	.43	.43			
	21-28	1-5	50-70	25-35	1.30-1.50	1.40-4.00	0.18-0.20	3.0-5.9	0.1-1.0	.43	.43			
	28-70	1-5	50-70	30-35	1.30-1.50	1.40-4.00	0.16-0.20	3.0-5.9	0.1-1.0	.43	.43			
	70-81	1-5	50-70	28-35	1.35-1.55	1.40-4.00	0.16-0.18	3.0-5.9	0.1-1.0	.43	.43			
75399: Jamesfin-----	0-10	2-5	65-80	10-27	1.20-1.40	4.00-14.00	0.22-0.24	0.1-2.9	2.0-4.0	.43	.43	5	5	56
	10-60	2-10	65-80	12-30	1.25-1.50	4.00-14.00	0.18-0.22	0.1-2.9	0.5-2.0	.43	.43			
75415: Jemerson-----	0-9	5-15	55-80	12-27	1.25-1.40	4.00-14.00	0.22-0.24	0.1-2.9	0.5-2.0	.37	.37	5	6	48
	9-50	5-15	50-75	12-35	1.30-1.50	4.00-14.00	0.18-0.22	3.0-5.9	0.1-1.0	.37	.37			
	50-60	25-45	35-55	15-27	1.30-1.45	4.00-14.00	0.17-0.22	0.1-2.9	0.1-0.5	.37	.37			

Table 19.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors			Wind erodi- bility group	Wind erodi- bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	um/sec	In/in	Pct	Pct					
75456: Racket-----	0-5	10-35	55-75	10-20	1.25-1.45	4.00-14.00	0.20-0.24	0.1-2.9	1.0-4.0	.32	.32	5	6	48
	5-30	10-35	55-75	10-30	1.25-1.45	4.00-14.00	0.18-0.22	0.1-2.9	1.0-3.0	.32	.32			
	30-68	40-60	15-40	15-30	1.30-1.50	4.00-14.00	0.09-0.11	3.0-5.9	1.0-3.0	.24	.32			
	68-80	20-45	15-35	42-60	1.35-1.55	0.42-1.40	0.05-0.08	6.0-8.9	0.5-2.0	.24	.32			
75457: Urban land.														
Jamesfin-----	0-10	2-5	65-80	10-27	1.20-1.40	4.00-14.00	0.22-0.24	0.1-2.9	2.0-4.0	.43	.43	5	5	56
	10-60	2-10	65-80	12-30	1.25-1.50	4.00-14.00	0.18-0.22	0.1-2.9	0.5-2.0	.43	.43			
75458: Tanglenook-----	0-7	1-5	45-65	30-40	1.25-1.30	1.40-4.00	0.21-0.23	3.0-5.9	2.0-4.0	.32	.32	5	6	48
	7-16	1-5	40-60	40-55	1.30-1.40	0.42-1.40	0.11-0.13	6.0-8.9	2.0-4.0	.28	.28			
	16-60	1-5	20-40	40-70	1.40-1.45	0.42-1.40	0.08-0.12	6.0-8.9	1.0-2.0	.28	.28			
99000: Pits, quarries.														
99001: Water.														
99012: Urban land.														

Table 20.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate
	In	meq/100 g	meq/100 g	pH	Pct
15002: McGirk-----	0-8	8.0-16	8.0-16	5.1-7.3	0
	8-15	10-20	10-20	4.5-6.0	0
	15-45	20-35	18-26	4.5-7.3	0
	45-80	20-30	18-26	4.5-7.8	0
60001: Menfro-----	0-6	10-16	9.0-16	5.1-7.3	0
	6-11	12-16	11-15	5.1-7.3	0
	11-34	15-20	13-19	5.1-7.3	0
	34-60	15-20	13-18	5.1-7.3	0
60003: Menfro-----	0-5	10-18	10-18	5.1-7.3	0
	5-28	16-22	15-21	5.1-7.3	0
	28-63	15-20	13-18	5.1-7.3	0
60004: Menfro-----	0-5	10-18	10-18	5.1-7.3	0
	5-28	16-22	15-21	5.1-7.3	0
	28-63	15-20	13-18	5.1-7.3	0
60005: Menfro-----	0-4	10-16	6.0-12	5.1-7.3	0
	4-16	10-16	6.0-12	5.1-7.3	0
	16-29	11-20	7.0-16	5.1-7.3	0
	29-62	13-25	8.0-20	5.1-7.3	0
60051: Urban land.					
Harvester-----	0-5	12-25	9.0-20	5.1-7.3	0
	5-80	12-25	9.0-20	5.1-7.3	0
60052: Urban land.					
Udorthents-----	0-10	25-45	20-40	6.6-8.4	0
	10-71	25-45	20-40	6.6-8.4	0
	71-80	---	---	---	---
64002: Freeburg-----	0-7	14-20	12-18	4.5-7.3	0
	7-60	13-29	11-27	4.5-7.3	0
64007: Freeburg-----	0-8	8.0-15	6.0-14	4.5-7.3	0
	8-18	6.0-14	4.0-12	4.5-6.5	0
	18-37	10-25	8.0-23	4.5-5.5	0
	37-65	10-22	8.0-20	4.5-7.3	0
64010: Urban land.					
Freeburg-----	0-8	8.0-15	6.0-14	4.5-7.3	0
	8-18	6.0-14	4.0-12	4.5-6.5	0
	18-37	10-25	8.0-23	4.5-5.5	0
	37-65	10-22	8.0-20	4.5-7.3	0

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate
	In	meq/100 g	meq/100 g	pH	Pct
64011: Kliever-----	0-8	5.0-15	3.0-13	5.6-7.3	0
	8-17	5.0-15	3.0-13	5.6-7.3	0
	17-52	10-25	8.0-22	4.5-7.3	0
	52-64	15-25	12-22	4.5-7.3	0
	64-80	18-26	15-23	4.5-7.3	0
64012: Kliever-----	0-8	5.0-15	3.0-13	5.6-7.3	0
	8-17	5.0-15	3.0-13	5.6-7.3	0
	17-52	10-25	8.0-22	4.5-7.3	0
	52-64	15-25	12-22	4.5-7.3	0
	64-80	18-26	15-23	4.5-7.3	0
64013: Kliever-----	0-8	5.0-15	3.0-13	5.6-7.3	0
	8-52	10-25	8.0-22	4.5-7.3	0
	52-64	15-25	12-22	4.5-7.3	0
	64-80	18-26	15-23	4.5-7.3	0
64014: Kliever-----	0-8	5.0-15	3.0-13	5.6-7.3	0
	8-52	10-25	8.0-22	4.5-7.3	0
	52-64	15-25	12-22	4.5-7.3	0
	64-80	18-26	15-23	4.5-7.3	0
66000: Moniteau-----	0-7	10-14	7.0-12	5.1-7.3	0
	7-14	6.0-12	4.0-10	5.1-7.3	0
	14-80	12-20	10-17	4.5-6.0	0
66004: Dockery-----	0-10	8.0-12	5.0-10	5.6-7.3	0
	10-60	8.0-14	5.0-13	5.6-7.3	0
66006: Waldron-----	0-11	20-28	18-26	6.6-7.8	2-5
	11-60	30-40	28-33	6.6-8.4	2-5
66009: Haynie-----	0-16	15-20	15-20	6.6-8.4	5-25
	16-64	8.0-20	8.0-20	7.4-8.4	5-30
66010: Sarpy-----	0-1	2.0-8.0	2.0-8.0	6.6-8.4	0-15
	1-60	2.0-8.0	2.0-8.0	6.6-8.4	5-15
66026: Blake-----	0-8	15-25	15-25	7.4-8.4	5-30
	8-60	10-26	10-26	7.4-8.4	5-30
66027: Haynie-----	0-6	8.0-20	8.0-20	6.6-8.4	0-25
	6-80	8.0-20	8.0-20	7.4-8.4	5-30
66028: Leta-----	0-9	20-35	20-35	6.6-8.4	1-2
	9-14	25-40	25-40	7.4-8.4	1-2
	14-22	25-40	25-40	7.4-8.4	1-2
	22-80	5.0-15	5.0-15	7.4-8.4	1-2

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate
	In	meq/100 g	meq/100 g	pH	Pct
70023: Eldon-----	0-9	8.0-25	6.0-19	4.5-7.3	0
	9-17	12-30	7.0-25	4.5-7.3	0
	17-60	17-30	13-20	4.5-7.3	0
70029: Moko-----	0-4	15-40	15-45	5.1-7.8	0
	4-7	15-40	15-40	6.1-7.8	0
	7-60	---	---	---	---
Rock outcrop.					
70046: Sacville-----	0-7	14-40	10-35	5.1-7.3	0
	7-13	14-40	10-35	5.1-7.3	0
	13-27	18-35	13-30	4.5-7.3	0
	27-60	18-35	13-30	5.6-7.8	0
73012: Gravois-----	0-6	8.0-15	5.0-11	4.5-6.5	0
	6-25	10-24	6.0-19	4.5-7.3	0
	25-35	10-18	6.0-14	4.5-7.3	0
	35-50	10-18	6.0-14	4.5-7.3	0
	50-80	25-36	25-40	6.6-7.8	0
73035: Gravois-----	0-6	8.0-15	5.0-11	4.5-6.5	0
	6-25	10-24	6.0-19	4.5-7.3	0
	25-35	10-18	6.0-14	4.5-7.3	0
	35-50	10-18	6.0-14	4.5-7.3	0
	50-80	25-36	25-40	6.6-7.8	0
73040: Maplewood-----	0-8	12-25	10-23	5.1-7.3	0
	8-17	18-34	13-29	5.1-7.3	0
	17-32	12-25	9.0-23	5.6-7.8	0
	32-60	15-30	14-30	5.6-7.8	0
73041: Maplewood-----	0-6	12-25	10-23	5.1-7.3	0
	6-17	18-34	13-29	5.1-7.3	0
	17-32	12-25	9.0-23	5.6-7.8	0
	32-60	15-30	14-30	5.6-7.8	0
73042: Niangua-----	0-3	6.0-16	3.0-13	4.5-7.3	0
	3-14	6.0-15	3.0-12	4.5-6.0	0
	14-52	30-55	23-45	5.1-7.3	0
	52-60	---	---	---	---
Bardley-----	0-4	20-30	15-25	4.5-7.3	0
	4-8	5.0-10	2.0-7.0	4.5-6.5	0
	8-27	30-50	21-40	4.5-7.3	0
	27-60	---	---	---	---
73048: Rueter-----	0-3	2.0-11	1.0-8.0	3.5-6.0	0
	3-14	4.0-10	1.0-6.0	4.5-6.0	0
	14-45	2.0-12	1.0-10	4.5-6.0	0
	45-86	10-32	7.0-29	3.5-6.0	0

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate
	In	meq/100 g	meq/100 g	pH	Pct
73050: Rock outcrop.					
Bardley-----	0-4	20-30	15-25	4.5-7.3	0
	4-8	5.0-10	2.0-7.0	4.5-6.5	0
	8-27	30-50	21-40	4.5-7.3	0
	27-60	---	---	---	---
73088: Rueter-----	0-3	2.0-11	1.0-8.0	3.5-6.0	0
	3-14	4.0-10	1.0-6.0	3.5-6.0	0
	14-45	2.0-12	1.0-10	3.5-6.0	0
	45-80	10-32	7.0-29	3.5-6.0	0
73089: Rueter-----	0-3	2.0-11	1.0-8.0	3.5-6.0	0
	3-14	4.0-10	1.0-6.0	3.5-6.0	0
	14-45	2.0-12	1.0-10	3.5-6.0	0
	45-80	10-32	7.0-29	3.5-6.0	0
73095: Gravois-----	0-6	8.0-15	5.0-11	5.1-6.5	0
	6-25	10-24	6.0-19	4.5-7.3	0
	25-35	10-18	6.0-14	4.5-7.3	0
	35-50	10-18	6.0-14	4.5-7.3	0
	50-80	25-36	25-40	6.6-7.8	0
73101: Wrengart-----	0-8	7.0-14	3.0-12	5.1-7.3	0
	8-36	15-26	11-21	4.5-7.3	0
	36-61	11-22	7.0-18	4.5-7.3	0
	61-80	24-40	19-35	5.1-7.8	0
73112: Gunlock-----	0-5	8.0-15	5.0-12	5.1-7.3	0
	5-25	18-24	14-20	4.5-7.3	0
	25-43	10-18	7.0-14	4.5-7.3	0
	43-55	18-34	14-29	4.5-7.8	0
	55-80	25-36	20-32	4.5-7.8	0
73250: Gatewood-----	0-3	10-30	5.0-25	5.1-7.3	0
	3-9	8.0-15	3.0-10	5.1-7.3	0
	9-24	30-50	25-45	5.1-7.8	0
	24-60	---	---	---	---
Moko-----	0-3	15-40	15-45	5.1-7.8	0
	3-8	15-40	15-40	6.1-7.8	0
	8-60	---	---	---	---
73251: Gatewood-----	0-3	10-30	5.0-25	5.1-7.3	0
	3-9	8.0-15	3.0-10	5.1-7.3	0
	9-24	30-50	25-45	5.1-7.8	0
	24-60	---	---	---	---
Moko-----	0-3	15-40	15-45	5.1-7.8	0
	3-8	15-40	15-40	6.1-7.8	0
	8-60	---	---	---	---

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate
	In	meq/100 g	meq/100 g	pH	Pct
73253: Ocie-----	0-3	10-25	7.0-20	4.5-6.5	0
	3-13	3.0-8.0	2.0-6.0	4.5-6.5	0
	13-20	4.0-12	2.0-10	4.5-6.5	0
	20-48	15-40	15-35	4.5-7.8	0
	48-80	---	---	---	---
73254: Ocie-----	0-3	10-25	7.0-20	4.5-6.5	0
	3-13	3.0-8.0	2.0-6.0	4.5-6.5	0
	13-20	4.0-12	2.0-10	4.5-6.5	0
	20-48	15-40	15-35	4.5-7.8	0
	48-80	---	---	---	---
73255: Ocie-----	0-7	10-25	7.0-20	4.5-6.5	0
	7-16	3.0-8.0	2.0-6.0	4.5-6.5	0
	16-23	6.0-12	4.0-10	4.5-6.5	0
	23-58	15-40	15-35	4.5-7.8	0
	58-80	---	---	---	---
73256: Arkana-----	0-8	5.0-15	3.0-10	4.5-6.5	0
	8-14	5.0-15	3.0-10	4.5-6.5	0
	14-33	25-50	20-45	4.5-7.8	0
	33-60	---	---	---	---
73257: Caneyville-----	0-7	15-25	13-23	5.1-7.3	0
	7-36	20-35	15-30	5.1-7.3	0
	36-80	---	---	---	---
73258: Cotton-----	0-9	5.0-15	3.0-13	5.6-7.3	0
	9-14	10-22	5.0-18	5.1-7.3	0
	14-27	15-30	10-25	4.5-6.5	0
	27-49	10-23	7.0-20	4.5-6.5	0
	49-66	5.0-15	3.0-12	6.1-7.3	0
	66-80	30-40	24-35	5.1-7.3	0
73259: Cotton-----	0-9	5.0-15	3.0-13	5.6-7.3	0
	9-14	10-22	5.0-18	5.1-7.3	0
	14-27	15-30	10-25	4.5-6.5	0
	27-49	10-23	7.0-20	4.5-6.5	0
	49-66	5.0-15	3.0-12	6.1-7.3	0
	66-80	30-40	24-35	5.1-7.3	0
73260: Maplewood-----	0-7	12-25	7.0-20	5.6-7.3	0
	7-11	12-25	7.0-22	5.1-6.5	0
	11-19	18-34	12-28	5.1-6.5	0
	19-29	12-25	10-23	5.6-7.3	0
	29-35	12-25	12-24	6.6-7.8	0
	35-52	25-40	22-37	6.6-7.8	0
	52-80	---	---	---	---

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate
	In	meq/100 g	meq/100 g	pH	Pct
73261: Wrengart-----	0-8	7.0-14	3.0-12	5.6-7.3	0
	8-36	15-26	11-21	4.5-7.3	0
	36-61	11-22	7.0-18	4.5-7.3	0
	61-77	24-40	19-35	5.1-7.8	0
	77-80	---	---	---	---
73262: Wrengart-----	0-5	7.0-14	3.0-12	5.6-7.3	0
	5-30	15-26	11-21	4.5-6.5	0
	30-62	11-22	7.0-18	5.1-7.3	0
	62-77	24-40	19-35	5.1-7.8	0
	77-80	---	---	---	---
73263: Wrengart-----	0-5	7.0-14	3.0-12	5.6-7.3	0
	5-30	15-26	11-21	4.5-7.3	0
	30-62	11-22	7.0-18	4.5-7.3	0
	62-77	24-40	19-35	5.1-7.8	0
	77-80	---	---	---	---
74634: Hartville-----	0-7	10-16	9.0-15	4.5-7.3	0
	7-12	9.0-20	7.0-18	4.5-6.5	0
	12-48	18-25	14-21	4.5-7.8	0
	48-80	16-25	15-24	5.6-8.4	0
74659: Deible-----	0-7	7.0-15	5.0-12	6.1-7.8	0
	7-13	7.0-15	5.0-12	4.5-6.5	0
	13-80	20-35	14-30	4.5-6.5	0
74678: Raccoon-----	0-6	10-20	6.0-16	4.5-7.3	0
	6-28	5.0-16	3.0-14	4.5-7.3	0
	28-58	10-23	6.0-20	4.5-5.5	0
	58-80	20-35	13-28	4.5-5.5	0
75376: Cedargap-----	0-9	7.0-17	5.0-14	5.1-7.3	0
	9-18	10-20	7.0-15	5.1-7.3	0
	18-49	10-20	7.0-15	5.1-7.3	0
	49-60	18-40	15-36	5.6-7.3	0
75387: Hacreek-----	0-9	20-30	20-30	5.6-7.3	0
	9-21	25-35	25-35	5.1-7.8	0
	21-28	20-30	20-30	5.1-7.8	0
	28-70	20-30	20-30	5.1-7.8	0
	70-81	20-30	20-30	5.1-7.8	0
75399: Jamesfin-----	0-10	6.0-20	4.0-18	5.6-7.8	0
	10-60	6.0-20	5.0-19	4.5-7.8	0
75415: Jemerson-----	0-9	8.0-16	3.0-12	5.1-7.3	0
	9-50	12-18	8.0-15	5.1-7.3	0
	50-60	12-18	6.0-15	4.5-7.3	0

Table 20.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation- exchange capacity	Effective cation- exchange capacity	Soil reaction	Calcium carbon- ate
	In	meq/100 g	meq/100 g	pH	Pct
75456: Racket-----	0-5	15-25	10-21	6.1-7.3	0
	5-30	10-20	5.0-17	6.1-7.3	0
	30-68	10-20	5.0-16	6.1-7.3	0
	68-80	20-35	15-28	6.1-7.3	0
75457: Urban land.					
Jamesfin-----	0-10	6.0-20	4.0-18	5.6-7.8	0
	10-60	6.0-20	5.0-19	5.6-7.8	0
75458: Tanglenook-----	0-7	22-27	20-25	6.1-7.3	0
	7-16	21-32	18-30	5.6-6.5	0
	16-60	25-40	22-38	4.5-6.0	0
99000: Pits, quarries.					
99001: Water.					
99012: Urban land.					

Table 21.--Water Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
15002: McGirk-----	C	None-----	---	---	0.5-2.0	Apparent	Nov-May
60001, 60003, 60004, 60005: Menfro-----	B	None-----	---	---	>6.0	---	---
60051: Urban land-----	---	None-----	---	---	---	---	---
Harvester-----	B	None-----	---	---	2.5-3.0	Perched	Nov-May
60052: Urban land-----	---	None-----	---	---	---	---	---
Udorthents-----	B	None-----	---	---	2.5-3.0	Perched	Nov-May
64002: Freeburg-----	C	None-----	---	---	1.0-2.5	Perched	Nov-May
64007: Freeburg-----	C	Occasional--	Brief-----	Nov-May	1.0-2.5	Perched	Nov-May
64010: Urban land-----	---	Very rare---	Brief-----	---	---	---	---
Freeburg-----	C	Rare-----	Brief-----	Jan-Dec	1.0-2.5	Perched	Nov-May
64011, 64012, 64013, 64014: Kliever-----	B	None-----	---	---	4.0-6.0	Perched	Nov-May
66000: Moniteau-----	C/D	Occasional--	Brief-----	Nov-May	0.0-1.0	Apparent	Nov-May
66004: Dockery-----	C	Frequent----	Brief-----	Nov-May	1.5-2.5	Apparent	Nov-Jun
66006: Waldron-----	D	Occasional--	Long-----	Jan-Dec	1.0-3.0	Apparent	Nov-Jun
66009: Haynie-----	B	Occasional--	Long-----	Jan-Dec	>6.0	---	---
66010: Sarpy-----	A	Frequent----	Long-----	Nov-Jun	>6.0	---	---
66026: Blake-----	B	Occasional--	Long-----	Jan-Dec	2.0-4.0	Apparent	Nov-Jun
66027: Haynie-----	B	Frequent----	Long-----	Nov-Jun	>6.0	---	---
66028: Leta-----	C	Occasional--	Long-----	Jan-Dec	1.0-3.0	Apparent	Nov-Jun
70023: Eldon-----	B	None-----	---	---	>6.0	---	---

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
70029: Moko----- Rock outcrop.	D	None-----	---	---	>6.0	---	---
70046: Sacville-----	D	None-----	---	---	0.0-1.0	Perched	Nov-May
73012, 73035: Gravois-----	C	None-----	---	---	1.5-3.0	Perched	Nov-May
73040, 73041: Maplewood-----	C	None-----	---	---	1.0-2.0	Perched	Nov-Apr
73042: Niangua-----	C	None-----	---	---	>6.0	---	---
Bardley-----	B	None-----	---	---	>6.0	---	---
73048: Rueter-----	B	None-----	---	---	>6.0	---	---
73050: Rock outcrop. Bardley-----	B	None-----	---	---	>6.0	---	---
73088, 73089: Rueter-----	B	None-----	---	---	>6.0	---	---
73095: Gravois-----	C	None-----	---	---	1.5-3.0	Perched	Nov-May
73101: Wrengart-----	C	None-----	---	---	2.0-3.5	Perched	Nov-Apr
73112: Gunlock-----	C	None-----	---	---	1.5-3.0	Perched	Nov-May
73250, 73251: Gatewood-----	C	None-----	---	---	1.5-3.0	Perched	Nov-May
Moko-----	D	None-----	---	---	>6.0	---	---
73253, 73254, 73255: Ocie-----	C	None-----	---	---	2.0-3.3	Perched	Nov-Apr
73256: Arkana-----	C	None-----	---	---	>6.0	---	---
73257: Caneyville-----	C	None-----	---	---	>6.0	---	---
73258, 73259: Cotton-----	C	None-----	---	---	0.5-1.5	Perched	Nov-May
73260: Maplewood-----	C	None-----	---	---	1.0-2.0	Perched	Nov-Apr
73261, 73262, 73263: Wrengart-----	C	None-----	---	---	2.0-3.5	Perched	Nov-Apr

Table 21.--Water Features--Continued

Map symbol and soil name	Hydro- logic group	Flooding			High water table		
		Frequency	Duration	Months	Depth Ft	Kind	Months
74634: Hartville-----	C	None-----	---	---	1.0-2.0	Perched	Nov-May
74659: Deible-----	D	Occasional--	Brief-----	Nov-May	0.0-1.0	Perched	Nov-May
74678: Raccoon-----	C/D	Occasional--	Brief-----	Nov-May	0.0-1.0	Apparent	Nov-May
75376: Cedargap-----	B	Frequent----	Very brief	Nov-Jun	3.5-5.0	Perched	Nov-Apr
75387: Hacreek-----	B	Occasional--	Brief-----	Nov-May	1.0-2.0	Apparent	Nov-May
75399: Jamesfin-----	B	Frequent----	Brief-----	Nov-Jun	4.0-6.0	Apparent	Nov-Apr
75415: Jemerson-----	B	Occasional--	Brief-----	Nov-Apr	3.5-5.0	Apparent	Nov-Apr
75456: Racket-----	B	Frequent----	Very brief	Nov-May	3.5-6.0	Apparent	Nov-Apr
75457: Urban land-----	---	Very rare---	Brief-----	---	---	---	---
Jamesfin-----	B	Occasional--	Brief-----	Nov-May	4.0-6.0	Apparent	Nov-Apr
75458: Tanglenook-----	D	Occasional--	Brief-----	Nov-May	0.0-1.5	Perched	Nov-May
99000: Pits, quarries.							
99001: Water.							
99012: Urban land.							

Table 22.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
15002: McGirk-----	---	---	---	---	Moderate	High	High
60001: Menfro-----	---	---	---	---	Moderate	Low	Moderate
60003: Menfro-----	---	---	---	---	Moderate	Low	Moderate
60004: Menfro-----	---	---	---	---	Moderate	Low	Moderate
60005: Menfro-----	---	---	---	---	Moderate	Low	Moderate
60051: Urban land.							
Harvester-----	---	---	---	---	Moderate	Low	Moderate
60052: Urban land.							
Udorthents-----	Bedrock (lithic)	60-80	---	Indurated	Moderate	High	Low
64002: Freeburg-----	---	---	---	---	Moderate	High	High
64007: Freeburg-----	---	---	---	---	Moderate	High	High
64010: Urban land.							
Freeburg-----	---	---	---	---	Moderate	High	High
64011: Kliever-----	---	---	---	---	Moderate	Low	High
64012: Kliever-----	---	---	---	---	Moderate	Low	High
64013: Kliever-----	---	---	---	---	Moderate	Low	High
64014: Kliever-----	---	---	---	---	Moderate	Low	High
66000: Moniteau-----	---	---	---	---	Moderate	High	High
66004: Dockery-----	---	---	---	---	Moderate	Moderate	Moderate
66006: Waldron-----	---	---	---	---	Moderate	High	Low
66009: Haynie-----	---	---	---	---	Moderate	Low	Low

Table 22.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
66010: Sarpy-----	---	---	---	---	Low	Low	Low
66026: Blake-----	---	---	---	---	Moderate	High	Low
66027: Haynie-----	---	---	---	---	Moderate	Low	Low
66028: Leta-----	---	---	---	---	Moderate	High	Low
70023: Eldon-----	---	---	---	---	Moderate	Moderate	High
70029: Moko-----	Bedrock (lithic)	4-20	---	Indurated	Moderate	Low	Low
Rock outcrop-----	Bedrock (lithic)	0	---	Indurated	---	---	---
70046: Sacville-----	---	---	---	---	Moderate	High	Moderate
73012: Gravois-----	Dense material	18-40	10-35	Noncemented	Moderate	Moderate	High
73035: Gravois-----	Dense material	18-40	10-35	Noncemented	Moderate	Moderate	High
73040: Maplewood-----	Dense material	16-40	8-20	Noncemented	Moderate	High	Moderate
73041: Maplewood-----	Dense material	16-40	8-20	Noncemented	Moderate	High	Moderate
73042: Niangua-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	Moderate	High
Bardley-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
73048: Rueter-----	---	---	---	---	Moderate	High	High
73050: Rock outcrop-----	Bedrock (lithic)	0	---	Indurated	---	---	---
Bardley-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
73088: Rueter-----	---	---	---	---	Moderate	High	High
73089: Rueter-----	---	---	---	---	Moderate	High	High
73095: Gravois-----	Dense material	18-40	10-35	Noncemented	Moderate	Moderate	High
73101: Wrengart-----	Dense material	20-40	5-35	Noncemented	Moderate	Moderate	High
73112: Gunlock-----	Dense material	20-34	10-30	Noncemented	Moderate	Moderate	High

Table 22.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
73250: Gatewood-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate
Moko-----	Bedrock (lithic)	4-20	---	Indurated	Moderate	Low	Low
73251: Gatewood-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	High	Moderate
Moko-----	Bedrock (lithic)	4-20	---	Indurated	Moderate	Low	Low
73253: Ocie-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	High	High
73254: Ocie-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	High	High
73255: Ocie-----	Bedrock (lithic)	40-60	---	Indurated	Moderate	High	High
73256: Arkana-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
73257: Caneyville-----	Bedrock (lithic)	20-40	---	Indurated	Moderate	Moderate	Moderate
73258: Cotton-----	Dense material	20-40	12-45	Noncemented	Moderate	High	High
73259: Cotton-----	Dense material	20-40	12-45	Noncemented	Moderate	High	High
73260: Maplewood-----	Dense material	16-40	6-28	Noncemented	Moderate	High	Moderate
	Bedrock (lithic)	48-59	---	Indurated			
73261: Wrengart-----	Dense material	20-40	5-35	Noncemented	Moderate	Moderate	High
	Bedrock (lithic)	60-79	---	Indurated			
73262: Wrengart-----	Dense material	20-40	5-35	Noncemented	Moderate	Moderate	High
	Bedrock (lithic)	60-79	---	Indurated			
73263: Wrengart-----	Dense material	20-40	5-35	Noncemented	Moderate	Moderate	High
	Bedrock (lithic)	60-79	---	Indurated			
74634: Hartville-----	---	---	---	---	Moderate	Moderate	High
74659: Deible-----	Abrupt textural change	11-22	---	Noncemented	Moderate	High	High
74678: Raccoon-----	---	---	---	---	Moderate	High	High
75376: Cedargap-----	---	---	---	---	Moderate	Low	Moderate

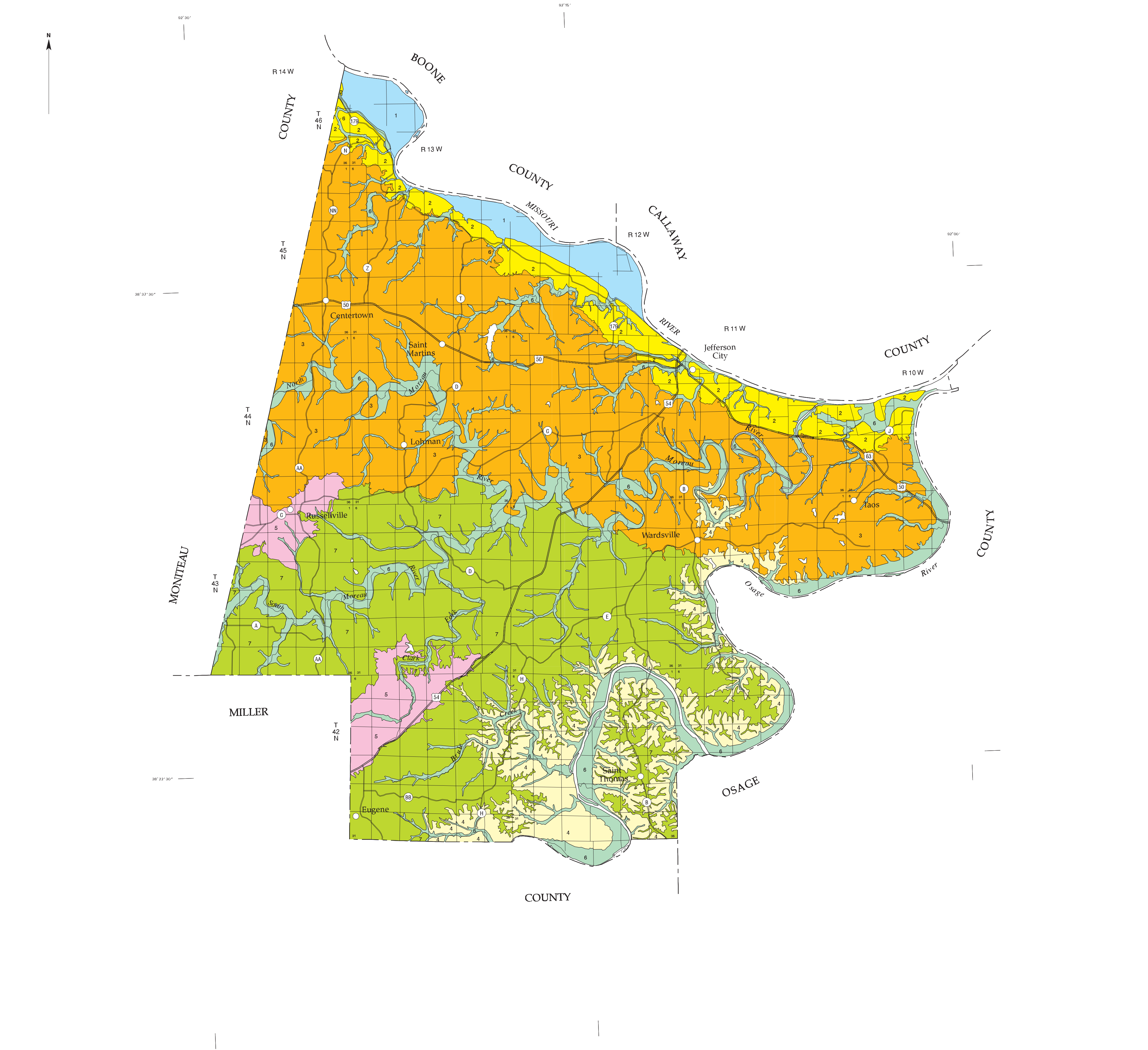
Table 22.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness		Uncoated steel	Concrete
		In	In				
75387: Hacreek-----	---	---	---	---	Moderate	High	Moderate
75399: Jamesfin-----	---	---	---	---	Moderate	Low	Moderate
75415: Jemerson-----	---	---	---	---	Moderate	Moderate	Moderate
75456: Racket-----	---	---	---	---	Moderate	Moderate	Low
75457: Urban land.							
Jamesfin-----	---	---	---	---	Moderate	Low	Moderate
75458: Tanglenook-----	---	---	---	---	Moderate	High	High
99000: Pits, quarries.							
99001: Water.							
99012: Urban land.							

Table 23.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Arkana-----	Very fine, mixed, active, mesic Mollic Hapludalfs
Bardley-----	Very fine, mixed, active, mesic Typic Hapludalfs
Blake-----	Fine-silty, mixed, superactive, calcareous, mesic Aquic Udifluvents
Caneyville-----	Fine, mixed, active, mesic Typic Hapludalfs
Cedargap-----	Loamy-skeletal, mixed, superactive, mesic Cumulic Hapludolls
Cotton-----	Fine, smectitic, mesic Fraguaquic Hapludalfs
Deible-----	Fine, mixed, active, mesic Typic Albaqualfs
Dockery-----	Fine-silty, mixed, superactive, nonacid, mesic Aquic Udifluvents
Eldon-----	Clayey-skeletal, mixed, active, mesic Mollic Paleudalfs
Freeburg-----	Fine-silty, mixed, superactive, mesic Aquic Hapludalfs
Gatewood-----	Very fine, mixed, active, mesic Oxyaquic Hapludalfs
Gravois-----	Fine-silty, mixed, active, mesic Aquic Paleudalfs
Gunlock-----	Fine, mixed, active, mesic Fragic Oxyaquic Hapludalfs
Hacreek-----	Fine-silty, mixed, superactive, mesic Aquic Argiudolls
Hartville-----	Fine, mixed, active, mesic Aquic Hapludalfs
Harvester-----	Fine-silty, mixed, superactive, nonacid, mesic Oxyaquic Udorthents
Haynie-----	Coarse-silty, mixed, superactive, calcareous, mesic Mollic Udifluvents
Jamesfin-----	Fine-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts
Jemerson-----	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Kliever-----	Fine-loamy, mixed, superactive, mesic Typic Hapludalfs
Leta-----	Clayey over loamy, smectitic, mesic Fluvaquentic Hapludolls
*Maplewood-----	Fine, mixed, active, mesic Fraguaquic Paleudalfs
McGirk-----	Fine, smectitic, mesic Chromic Vertic Endoaqualfs
Menfro-----	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Moko-----	Loamy-skeletal, mixed, superactive, mesic Lithic Hapludolls
Moniteau-----	Fine-silty, mixed, superactive, mesic Typic Endoaqualfs
Niangua-----	Very fine, mixed, active, mesic Typic Hapludalfs
Ocie-----	Loamy-skeletal over clayey, mixed, semiactive, mesic Oxyaquic Hapludalfs
Racket-----	Fine-loamy, mixed, superactive, mesic Cumulic Hapludolls
Raccoon-----	Fine-silty, mixed, superactive, mesic Typic Endoaqualfs
Rueter-----	Loamy-skeletal, siliceous, active, mesic Typic Paleudalfs
Sacville-----	Fine, smectitic, mesic Vertic Argiaquolls
Sarpy-----	Mixed, mesic Typic Udipsamments
Tanglenook-----	Fine, mixed, superactive, mesic Typic Argiaquolls
Udorthents-----	Clayey-skeletal, mixed, active, mesic Typic Udorthents
Waldron-----	Fine, smectitic, calcareous, mesic Aeric Fluvaquents
Wrengart-----	Fine-silty, mixed, active, mesic Fragic Oxyaquic Hapludalfs



SECTIONALIZED TOWNSHIP					
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Each area outlined on this map consists of more than one kind of soil. The map is meant for general planning rather than a basis for decisions on the use of specific tracts.

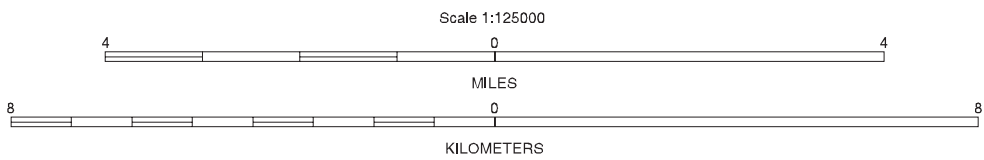
SOIL LEGEND*

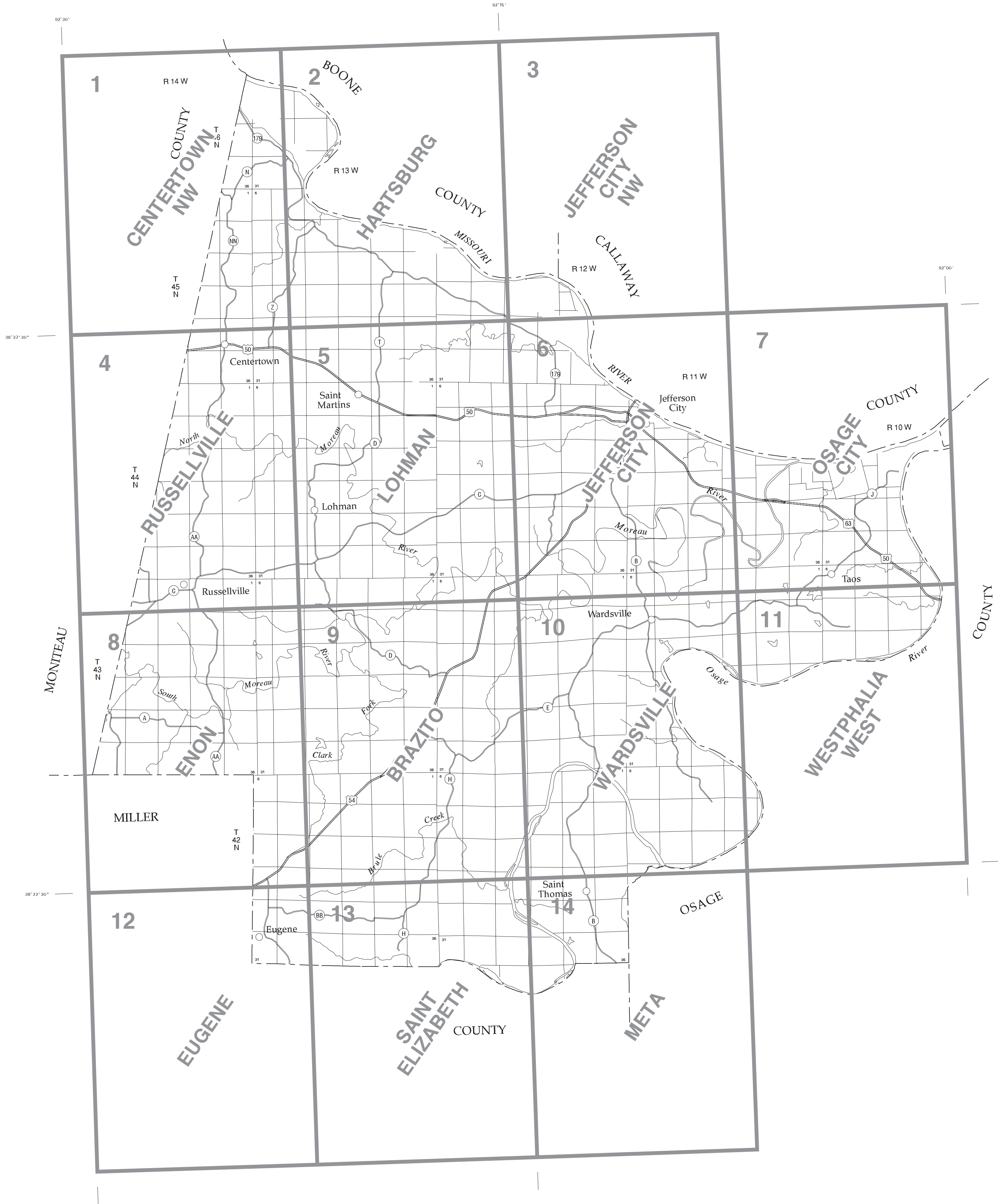
- 1 Haynie-Blake-Sarpy
- 2 Menfro
- 3 Wrengart-Gatewood
- 4 Rueter-Niangua-Gravois
- 5 Maplewood-Arkana
- 6 Jamesfin-Monteau
- 7 Gravois-Gatewood

*The units on this legend are described in the text under the heading "General Soil Map Units."
Compiled 2000

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
in cooperation with
COLE COUNTY SOIL AND WATER CONSERVATION DISTRICT
MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI AGRICULTURAL EXPERIMENT STATION
MISSOURI DEPARTMENT OF CONSERVATION

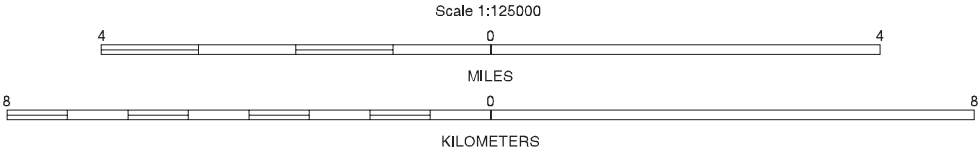
GENERAL SOIL MAP
COLE COUNTY, MISSOURI





SECTIONALIZED TOWNSHIP					
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

INDEX TO MAP SHEETS
COLE COUNTY, MISSOURI



SOIL LEGEND

Map unit symbols consist of five-digit numbers that represent individual map units. The symbols relate to the MLRA where the typical pedon resides and to the landform on which it occurs. These symbols are unique for each map unit phase and are part of the Missouri statewide soil identification legend.

SYMBOL

NAME

15002	McGirk silt loam, 1 to 3 percent slopes
60001	Menfro silt loam, 5 to 9 percent slopes
60003	Menfro silt loam, 9 to 14 percent slopes, eroded
60004	Menfro silt loam, 14 to 20 percent slopes, eroded
60005	Menfro silt loam, 20 to 35 percent slopes
60051	Urban land-Harvester complex, 3 to 15 percent slopes
60052	Urban land-Udorthents complex, 3 to 15 percent slopes
64002	Freeburg silt loam, 1 to 3 percent slopes
64007	Freeburg silt loam, 0 to 2 percent slopes, occasionally flooded
64010	Urban land-Freeburg complex, 0 to 3 percent slopes, rarely flooded
64011	Kliever loam, 2 to 5 percent slopes
64012	Kliever loam, 5 to 9 percent slopes
64013	Kliever loam, 9 to 14 percent slopes, eroded
64014	Kliever loam, 14 to 20 percent slopes, eroded
66000	Moniteau silt loam, 0 to 2 percent slopes, occasionally flooded
66004	Dockery silt loam, 0 to 2 percent slopes, frequently flooded
66006	Waldron silty clay loam, 0 to 2 percent slopes, occasionally flooded
66009	Haynie silt loam, 0 to 2 percent slopes, occasionally flooded
66010	Sarpy fine sand, 0 to 2 percent slopes, frequently flooded
66026	Blake loam, 0 to 2 percent slopes, occasionally flooded
66027	Haynie very fine sandy loam, 0 to 2 percent slopes, frequently flooded
66028	Leta silty clay loam, 0 to 2 percent slopes, occasionally flooded
70023	Eldon silt loam, 3 to 8 percent slopes
70029	Moko-Rock outcrop complex, 15 to 50 percent slopes, very stony
70046	Sacville silt loam, 2 to 5 percent slopes
73012	Gravois silt loam, 3 to 8 percent slopes
73035	Gravois silt loam, 8 to 15 percent slopes
73040	Maplewood silt loam, 2 to 5 percent slopes, eroded
73041	Maplewood silt loam, 5 to 9 percent slopes, eroded
73042	Niangua-Bardley complex, 15 to 50 percent slopes, extremely stony
73048	Rueter gravelly silt loam, 3 to 8 percent slopes
73050	Rock outcrop-Bardley complex, 35 to 99 percent slopes, extremely stony
73088	Rueter very gravelly silt loam, 8 to 15 percent slopes, very stony
73089	Rueter very gravelly silt loam, 15 to 35 percent slopes, very stony
73095	Gravois silt loam, 15 to 20 percent slopes
73101	Wrengart silt loam, 5 to 9 percent slopes
73112	Gunlock silt loam, 3 to 8 percent slopes
73250	Gatewood-Moko complex, 3 to 8 percent slopes, very stony
73251	Gatewood-Moko complex, 8 to 20 percent slopes, very stony
73253	Ocie gravelly silt loam, 3 to 8 percent slopes
73254	Ocie gravelly silt loam, 8 to 15 percent slopes, very stony
73255	Ocie very gravelly silt loam, 15 to 35 percent slopes, extremely stony
73256	Arkana gravelly silt loam, 3 to 8 percent slopes
73257	Caneyville silty clay loam, 3 to 8 percent slopes, eroded
73258	Cotton silt loam, 1 to 3 percent slopes, eroded
73259	Cotton silt loam, 3 to 8 percent slopes, eroded
73260	Maplewood silt loam, 2 to 5 percent slopes, bedrock substratum
73261	Wrengart silt loam, 5 to 9 percent slopes, bedrock substratum
73262	Wrengart silt loam, 9 to 14 percent slopes, bedrock substratum
73263	Wrengart silt loam, 14 to 20 percent slopes, eroded, bedrock substratum
74634	Hartville silt loam, 3 to 8 percent slopes
74659	Deible silt loam, 0 to 2 percent slopes, occasionally flooded
74678	Raccoon silt loam, 0 to 2 percent slopes, occasionally flooded
75376	Cedargap gravelly silt loam, 0 to 3 percent slopes, frequently flooded
75387	Hacreek silt loam, 0 to 2 percent slopes, occasionally flooded
75399	Jamesfin silt loam, 0 to 3 percent slopes, frequently flooded
75415	Jamerson silt loam, 0 to 3 percent slopes, occasionally flooded
75456	Racket silt loam, 0 to 3 percent slopes, frequently flooded, clayey substratum
75457	Urban land-Jamesfin complex, 0 to 3 percent slopes, occasionally flooded
75458	Tanglenook silty clay loam, 0 to 2 percent slopes, occasionally flooded
99000	Pits, quarries
99001	Water
99012	Urban land, 3 to 15 percent slopes

CONVENTIONAL AND SPECIAL
SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

County or parish

Field sheet matchline and neatline

Public Land Survey System
Section Boundary

ROAD EMBLEM & DESIGNATIONS

Federal

State

County, farm or ranch

287

50

1283

WATER FEATURES

DRAINAGE

Perennial stream

SPECIAL SYMBOLS FOR
SOIL SURVEY

SOIL DELINEATIONS AND SYMBOLS

73262 73112



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1995 aerial photography.

North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

COLE COUNTY, MISSOURI
HARTSBURG QUADRANGLE
SHEET NUMBER 2 OF 14

1	2	3	1 JAMESTOWN
4		5	2 ASHLAND
6	7	8	3 MILLERSBURG SW
			4 CENTERTOWN NW
			5 JEFFERSON CITY
			6 RUSSELLVILLE
			7 LOHMAN
			8 JEFFERSON CITY

INDEX TO ADJOINING 7.5 MAPS

HARTSBURG, MISSOURI
7.5 MINUTE SERIES
SHEET NUMBER 2 OF 14

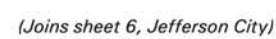
92°15'00"
38°45'00"

R. 12 W. R. 11 W.

92°12'30"

92°10'00"

38° 45' 00"



North American Datum of 1983 (NAD83). GRS-80 Spheroid.
1000-meter ticks: Universal Transverse Mercator, zone 15.
Coordinate grid ticks and land division data, if shown, are
approximately positioned. Digital data are available for
this quadrangle.



JEFFERSON CITY NW, MISSOURI
7.5 MINUTE SERIES
SHEET NUMBER 3 OF 14

COLE COUNTY, MISSOURI
RUSSELLVILLE QUADRANGLE
SHEET NUMBER 4 OF 14

(Joins sheet 1, Centertown NW)



North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



1	2	3	1 CALIFORNIA NORTH
			2 CENTERTOWN NW
			3 HARTSBURG
4		5	4 CALIFORNIA SOUTH
			5 LOHMAN
6	7	8	6 OLEAN
			7 ENON
			8 BRAZITO

INDEX TO ADJOINING 7.5 MAPS

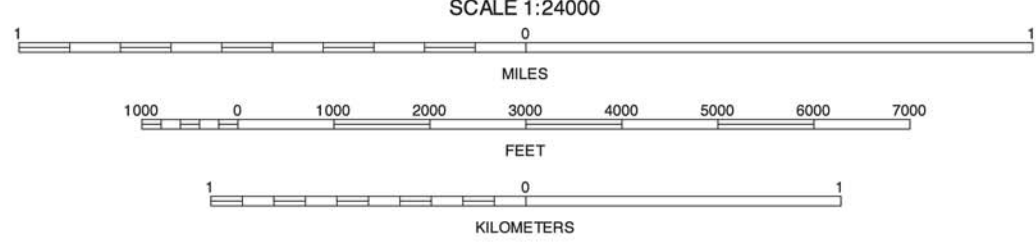
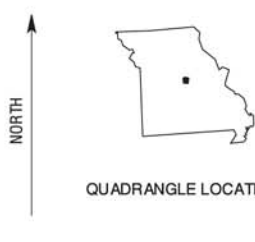
RUSSELLVILLE, MISSOURI
7.5 MINUTE SERIES
SHEET NUMBER 4 OF 14

(Joins sheet 2, Hartsburg)



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1995 aerial photography.

North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

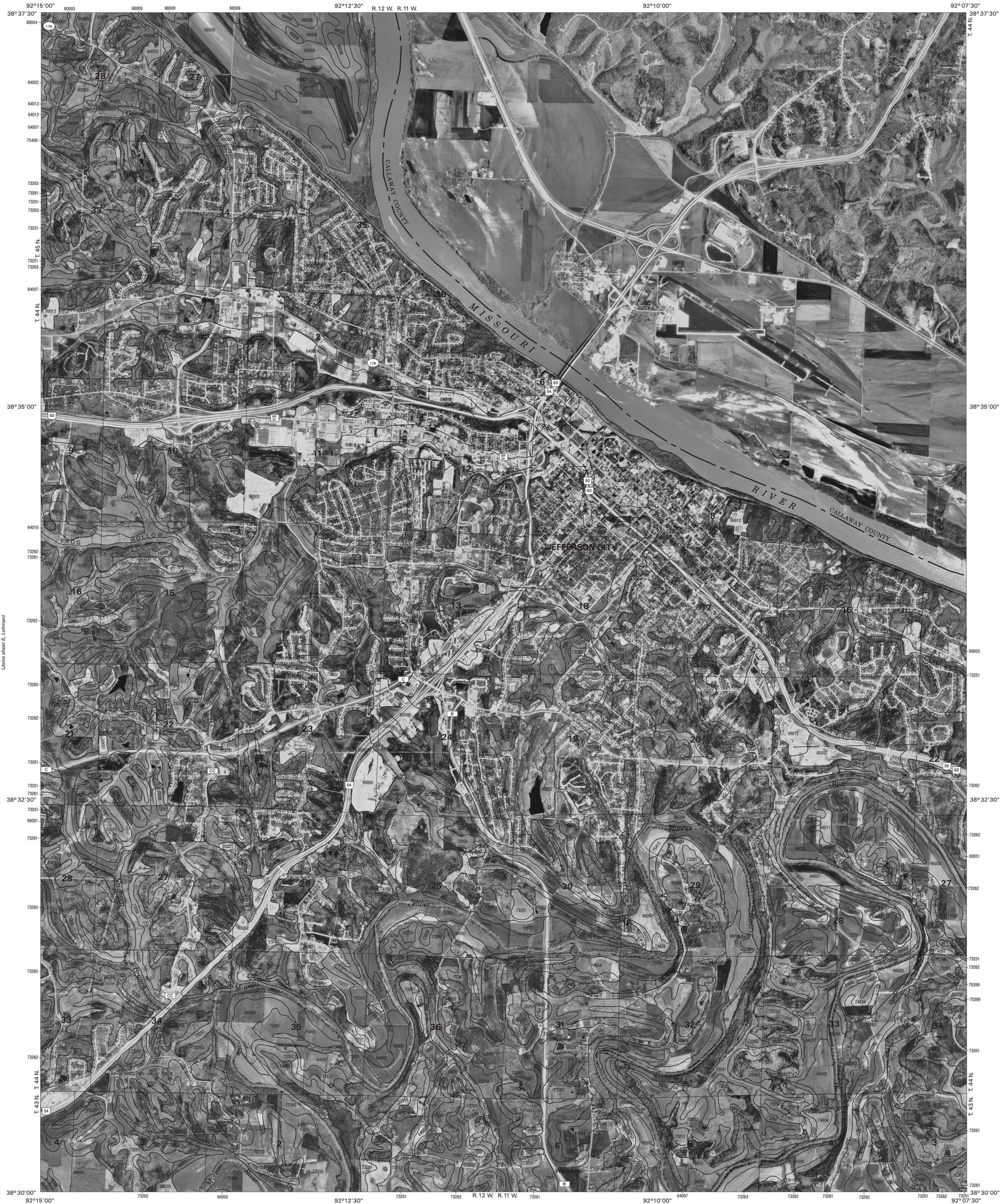


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LOHMAN, MISSOURI
7.5 MINUTE SERIES
SHEET NUMBER 5 OF 14

(Joins sheet 3, Jefferson City NW)

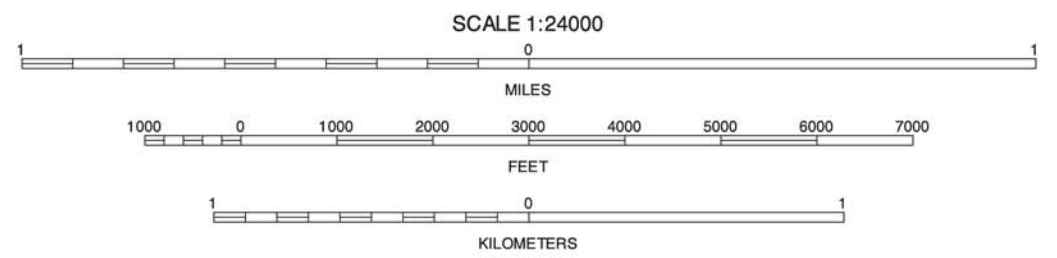
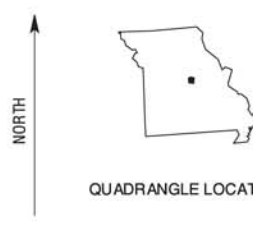


(Joins sheet 5, Lohman)

(Joins sheet 7, Osage City)

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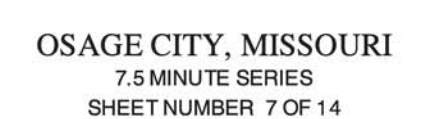


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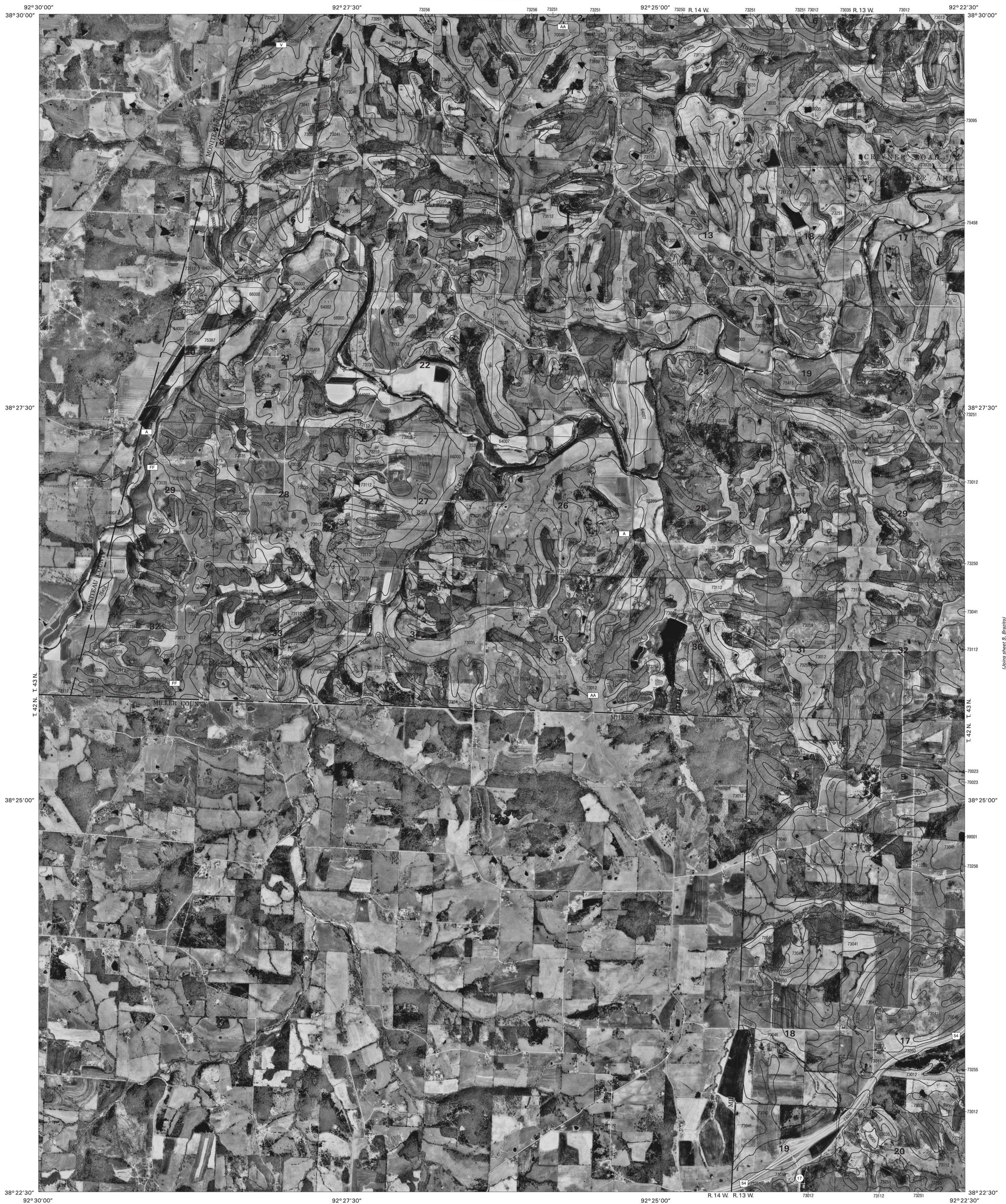
JEFFERSON CITY, MISSOURI
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SHEET NUMBER 6 OF 14

COLE COUNTY, MISSOURI
OSAGE CITY QUADRANGLE
SHEET NUMBER 7 OF 14



COLE COUNTY, MISSOURI
ENON QUADRANGLE
SHEET NUMBER 8 OF 14

(Joins sheet 4, Russellville)



QUADRANGLE LOCATION

SCALE 1:24000

0 1000 2000 3000 4000 5000 6000 7000
MILES

0 1000 2000 3000 4000 5000 6000 7000
FEET

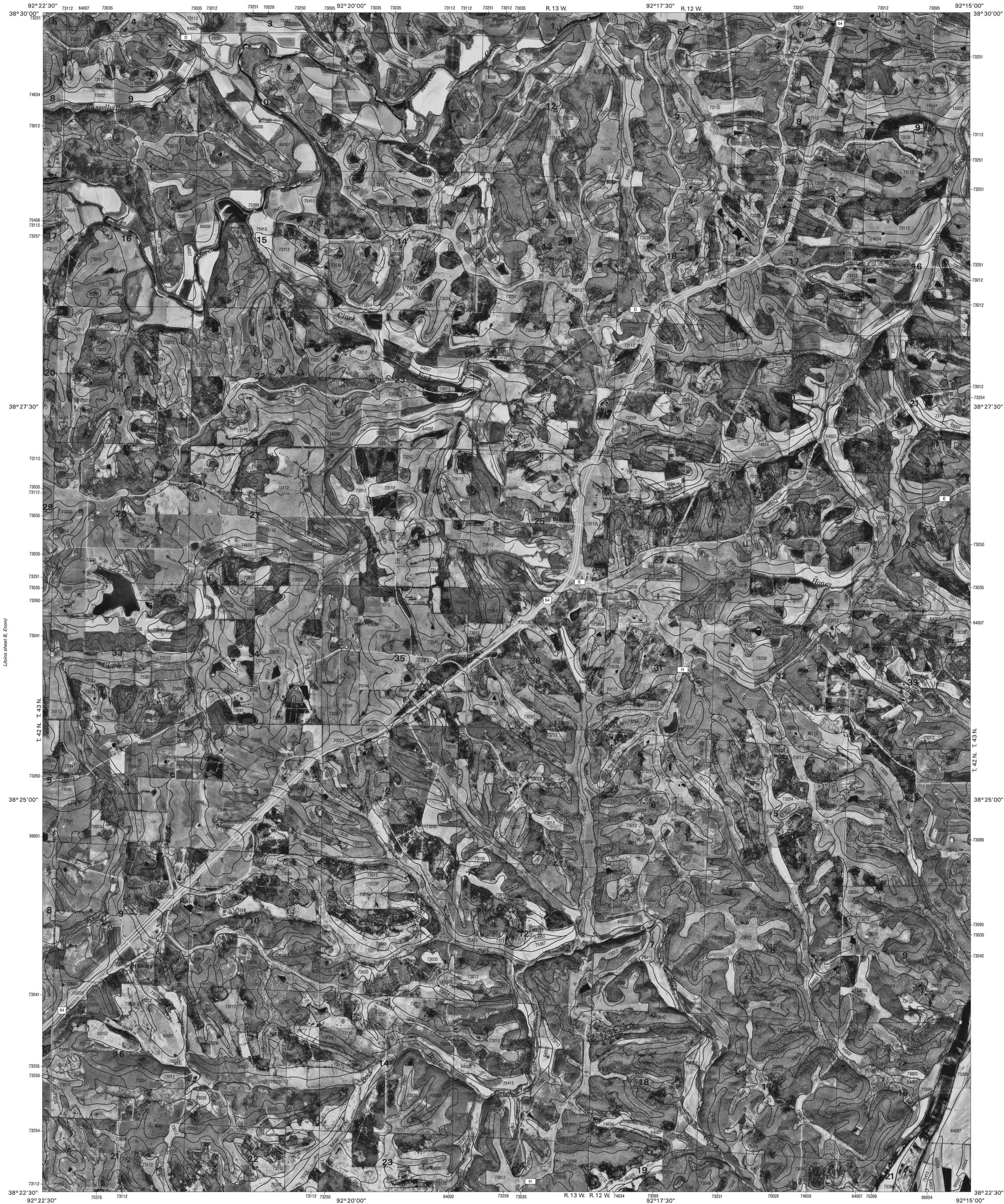
0 1
KILOMETERS

1	2	3	1 CALIFORNIA SOUTH
			2 RUSSELLVILLE
4		5	3 LOHMAN
			4 OLEAN
6	7	8	5 BRAZITO
			6 ELDON
			7 EUGENE
			8 SAINT ELIZABETH

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(Joins sheet 5, Lohman)



(Joins sheet 8, Enon)

(Joins sheet 10, Wardsville)

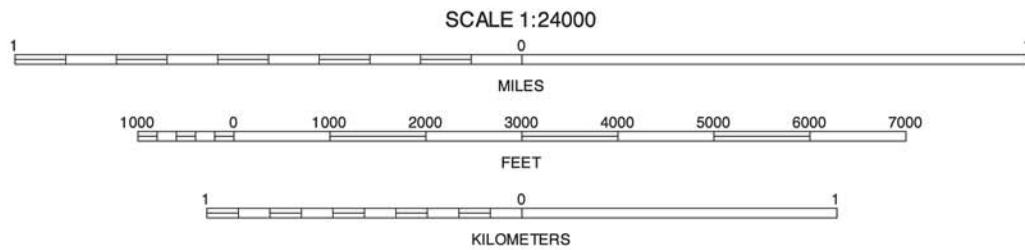
(Joins sheet 13, Saint Elizabeth)

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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUADRANGLE LOCATION

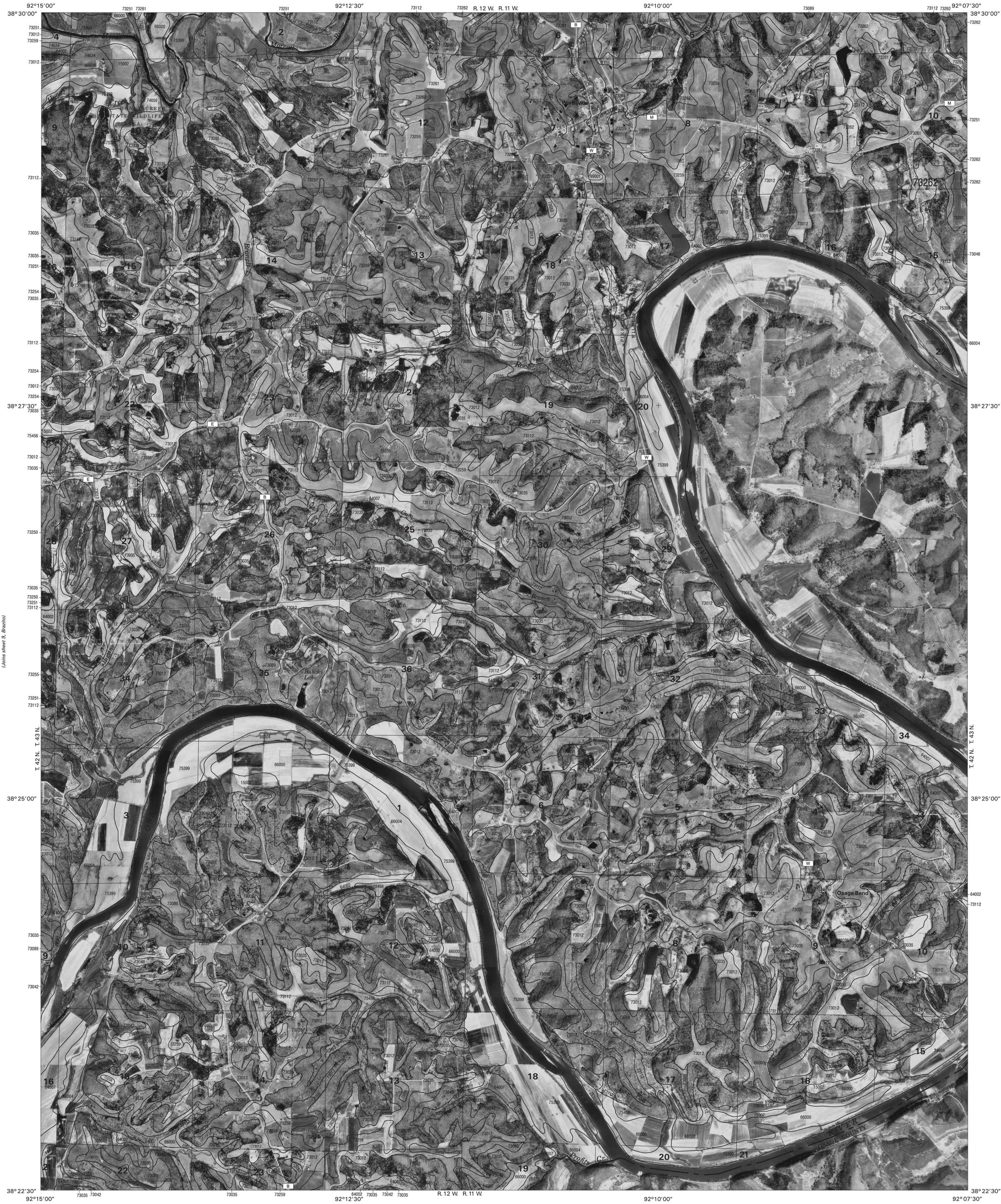


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(Joins sheet 6, Jefferson City)

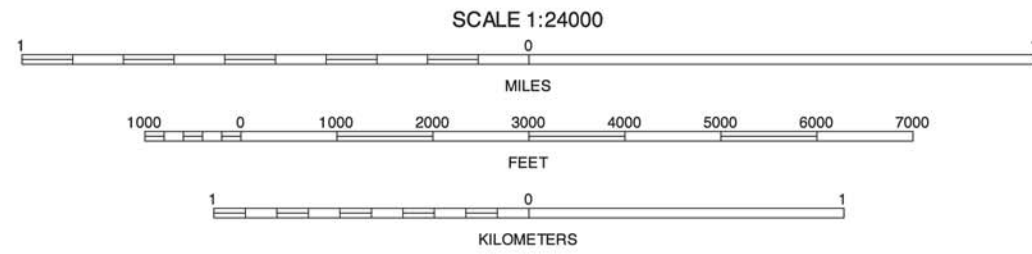


(Joins sheet 9, Brazil)

(Joins sheet 11, Westphalia West)

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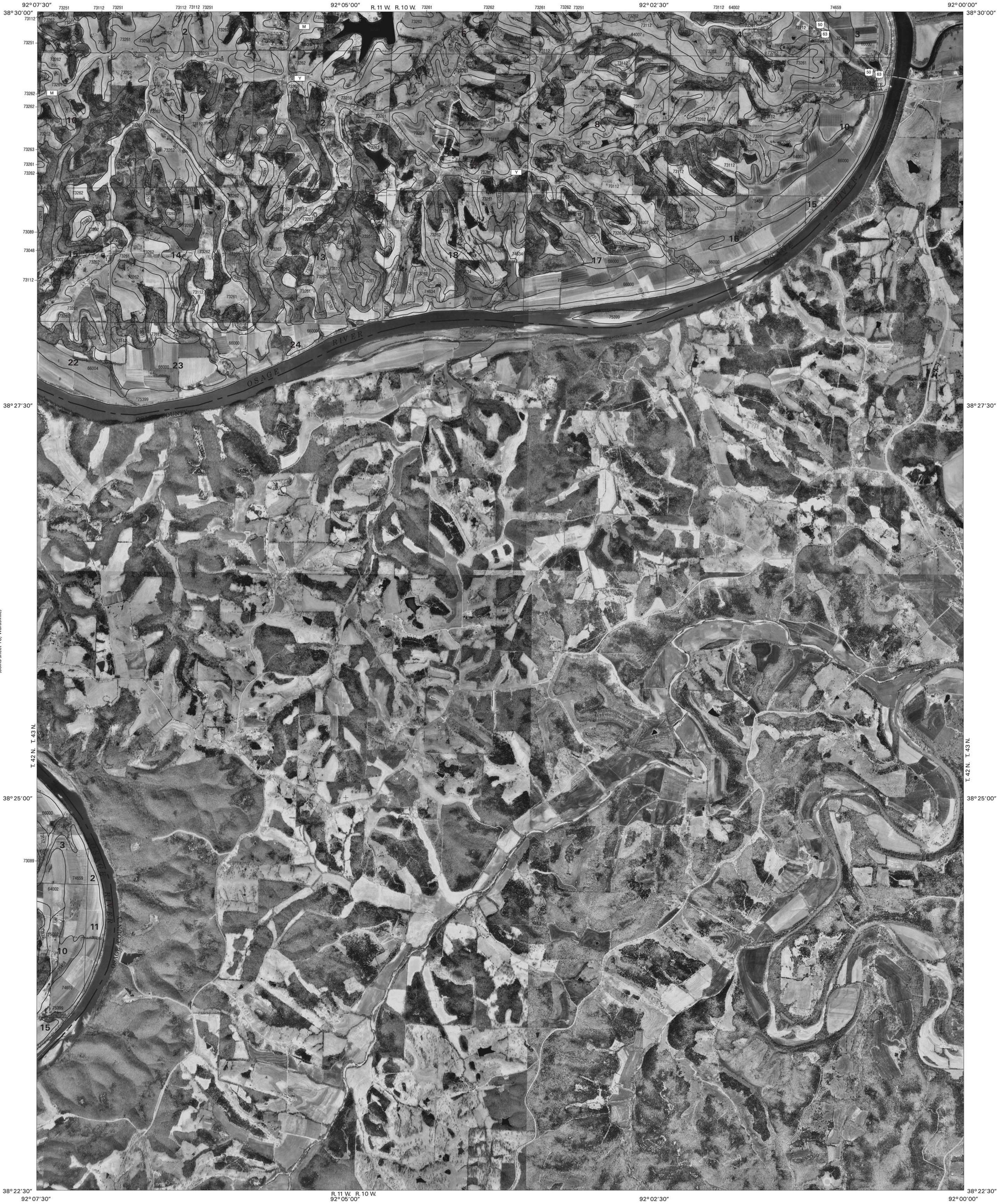
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WARDSVILLE, MISSOURI
7.5 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

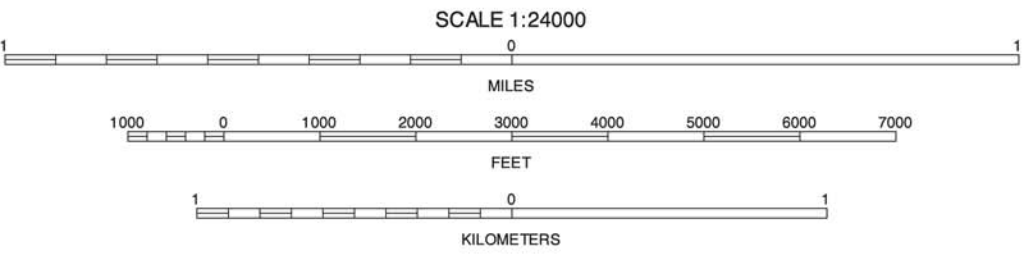
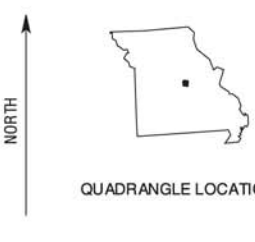
COLE COUNTY, MISSOURI
WESTPHALIA WEST QUADRANGLE
SHEET NUMBER 11 OF 14

(Joins sheet 7, Osage City)



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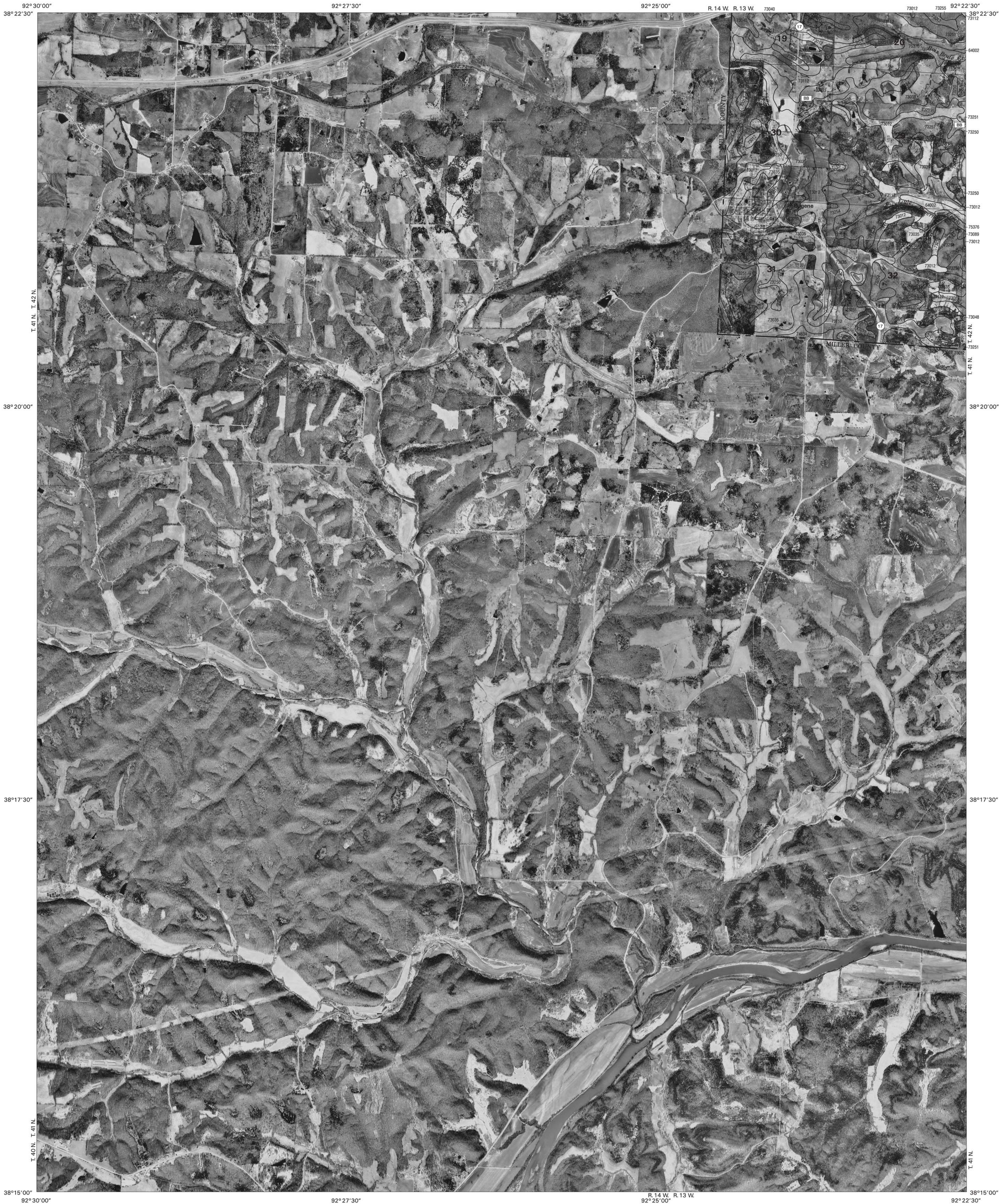


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WESTPHALIA WEST, MISSOURI
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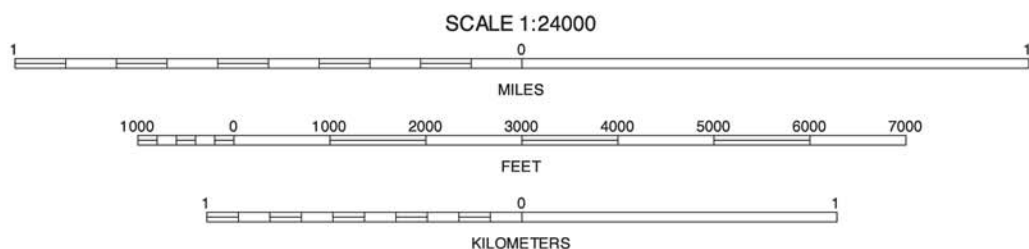
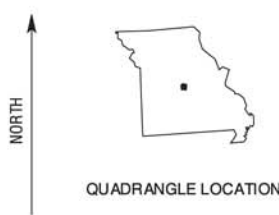
(Joins sheet 8, Enon)



(Joins sheet 13, Saint Elizabeth)

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North American Datum of 1983 (NAD83), GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 15. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

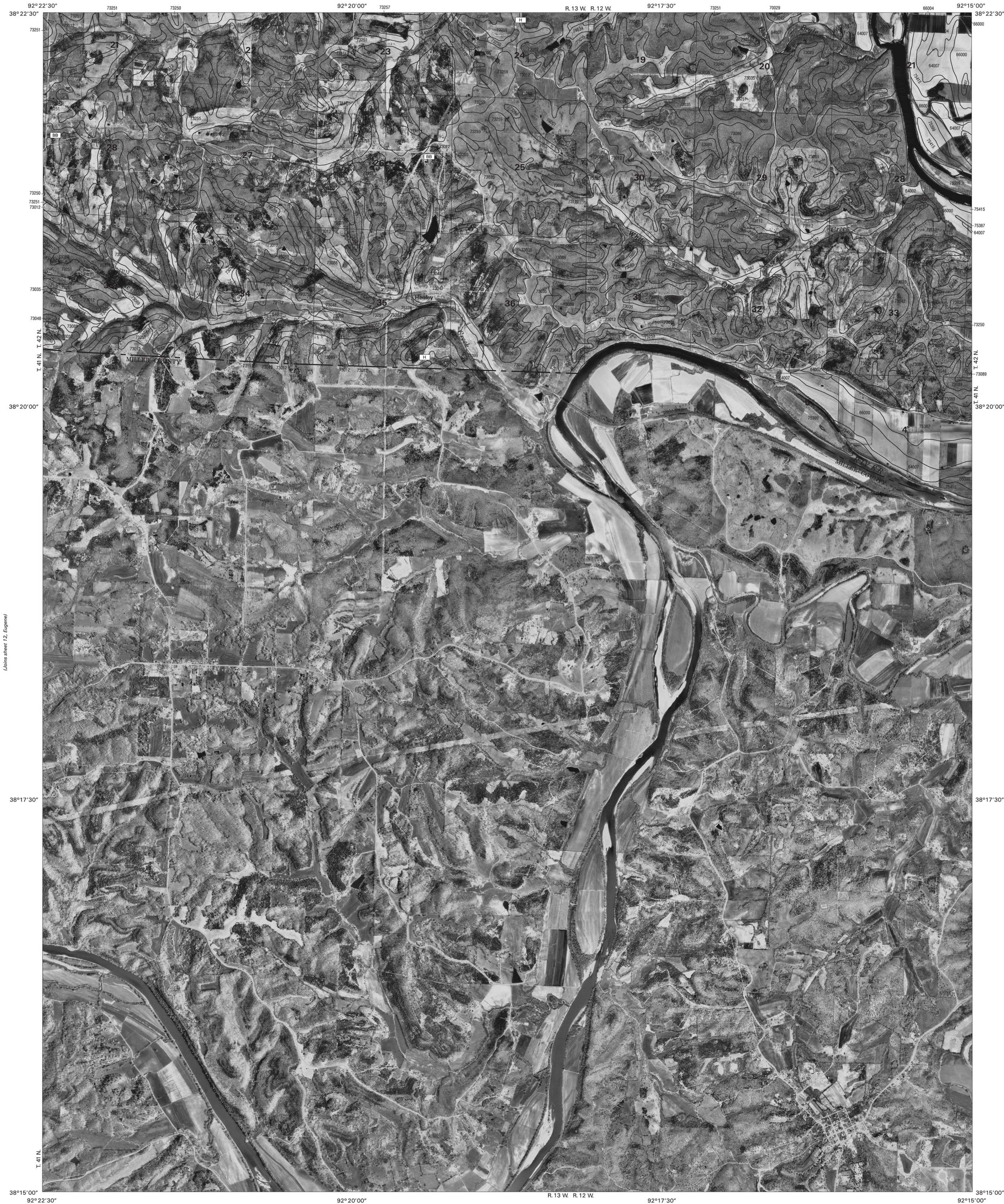


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EUGENE, MISSOURI
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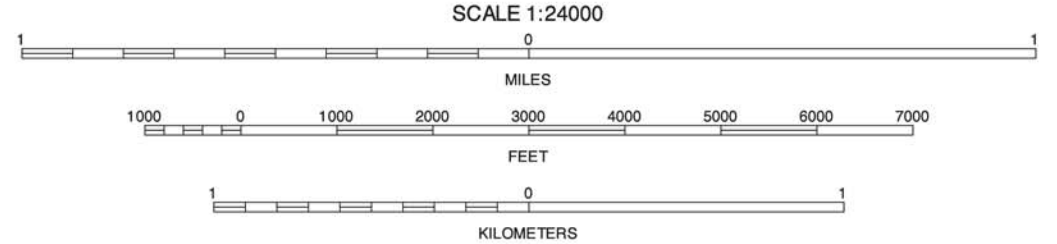
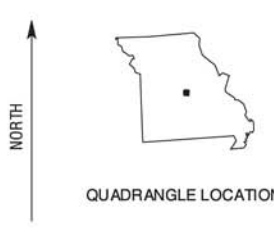


(Joins sheet 12, Eugene)

(Joins sheet 14, Meta)

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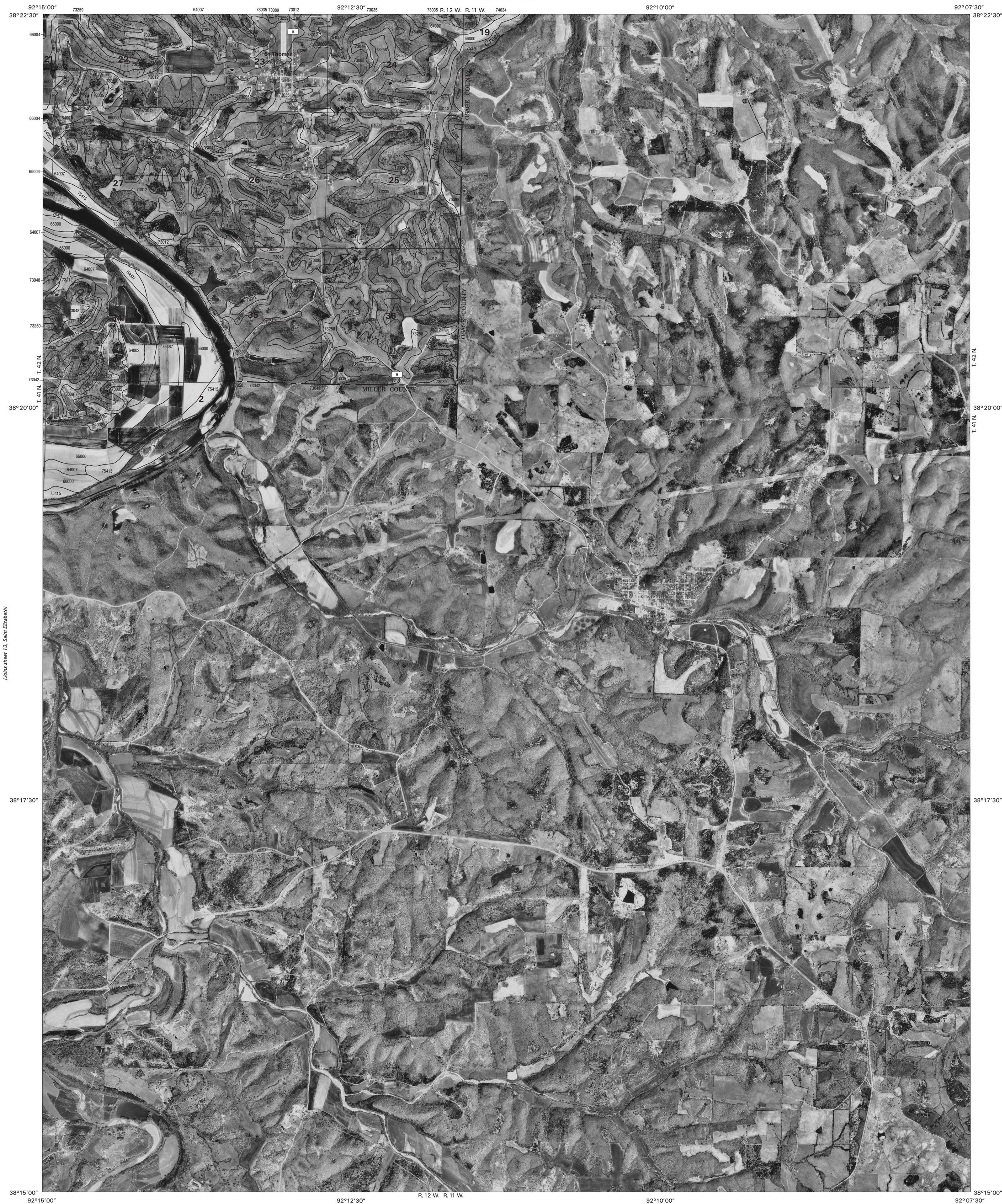


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SAINT ELIZABETH, MISSOURI
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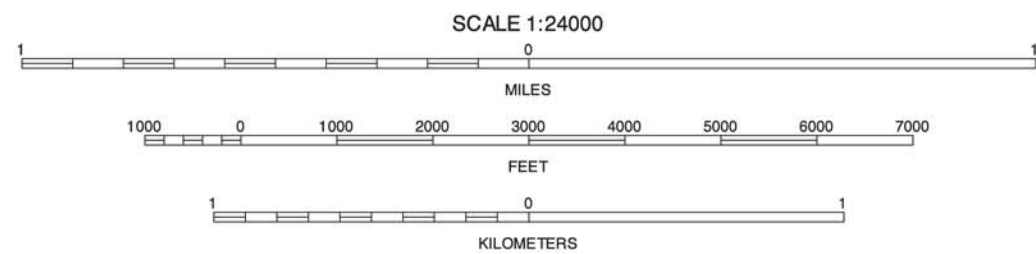
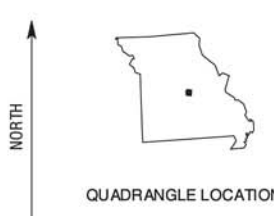
(Joins sheet 10, Wardsville)



(Joins sheet 13, Saint Elizabeth)

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5 ARGYLE
6 SAINT ANTHONY
7 VAN CLEVELAND
8 BRINKTOWN

META, MISSOURI
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